



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
SEATTLE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-3755

Military Unit
Contracting Division

AMENDMENT R0004

October 28, 2003

Contract No. DACA67-00-D-0201: Mr. Barry Pugh, Mooney and Pugh Contractors, Inc.,
P. O. Box 11737, Spokane, WA 99221-1737 (5307 E. Cateldo, Spokane, WA 99212-0929)
(bpugh@MooneyandPugh.com; cyost@mooneyandpugh.com)
ph: (509) 535-8874; fax: (509)-535-7251

Contract No. DACA67-00-D-0202: Mr. Clayton Record, Record Steel and Construction, Inc.,
1854 East Lanark Street, Meridian, ID 83642-5924 (robin@rscigroup.com;
clayton@rscigroup.com) ph: (208) 887-1401 x112; fax: (208) 888-9130

Contract No. DACA67-00-D-0203: Mr. Wade Perrow, Wade Perrow Construction, Inc., P. O.
Box 1728, Gig Harbor, WA 98335-3728 (10421 Burnham Drive NW, Gig Harbor, WA 98332)
(wade@wpconstruction.com; carole@wpconstruction.com)
ph: (253) 851-9309; fax: (253) 851-6475

SUBJECT: **Amendment Number 0004** to Request for Proposal (RFP) No. DACA67-03-T-2003, entitled "ADAL Fitness Center, Mountain Home AFB, Idaho."

Dear MATOC Contractors:

Please reference your multiple award task order contracts (MATOC) numbers DACA67-00-D-0201, DACA67-00-D-0202, and DACA67-00-D-0203 entitled "Design-Build: MATOC Primarily for Air Force Construction Projects in the Northwestern Division", and Request for Proposals (RFP) No. DACA67-03-T-2003, entitled "ADAL Fitness Center, Mountain Home AFB, Idaho."

The purpose of this Amendment 0004, dated 28 October 2003, is to incorporate the following information in this solicitation:

- (1) **Delete** Section 00110 - Proposal Submission And Evaluation
Insert Revised Section 00110, revision to paragraph 4.5.2
- (2) **Delete** Section 00860, Fitness Center Roofing System (Optional Item 0006), Design Development Technical Criteria
Insert Revised Section 00860, revision to Paragraph 1.5
- (3) **Delete** Section 07412, Non-Structural Metal Roofing
Insert Revised Section 07412, clarify warranty period

- (4) **Delete** Section 07416, Structural Standing Seam Metal Roof (SSSMR) System
Insert Revised Section 07416, clarify warranty period.

The attached revised pages supersede and replace the corresponding pages. The attached revised specification sections supersede and replace the corresponding specification sections. Specification changes are generally identified, for convenience, by strikeout for deletions, and underlining of text for additions. All portions of the revised or new pages shall apply whether or not changes have been indicated.

Please acknowledge receipt of amendment Number 0004, dated October 28, 2003, in the cover letter of your signed offer. The time and date for receipt of your proposal remains unchanged at November 3, 2003, 2 PM, local time. **NOTE: PROPOSALS CAN NO LONGER BE FAXED. DELIVERY IN PERSON OR BY MAIL OR DELIVERY SERVICE ONLY.**

Any questions regarding the technical aspects of this project should be addressed to James Nakamoto at telephone number (206) 764-6707. Administrative questions should be addressed to Nancy Gary, Contract Specialist, at (206) 764-3266.

Sincerely,



Susan K. Sherrell
Contracting Officer

Attachments

SECTION 00110 - PROPOSAL SUBMISSION AND EVALUATION

1. INTRODUCTION: Each of the firms is invited to submit a proposal in response to Request for Proposals (RFP) No. DACA67-03-T-2003 entitled "Addition/Alteration (ADAL) Fitness Center at Mountain Home AFB, Idaho." The project provides for construction of an addition to the existing fitness center. The new addition will house locker rooms, two racquetball courts, administration, cardiovascular area and a health and wellness center. Portions of the existing facility will be altered. All new and renovated spaces will receive new HVAC systems. Work will include electrical systems, fire sprinklers, fire alarm, communications and other support services. Interior finishes include gypsum board, acoustical ceilings, carpet, vinyl tile, ceramic tile and painting. Exterior includes masonry walls, blast resistant glazing system with standing seam metal roof as well as some flat roof areas. Site work includes all utilities, parking and landscaping. The project will include an option for a design-build standing seam metal roof system, integrating the existing structures and the new addition. This RFP establishes project design and construction criteria and provides procedures, requirements, format, and other data to assist offerors in preparing their proposals. **It is the intent of the Government to make award based upon initial offers, without further discussions or additional information.**

A contract will be awarded to the firm submitting the proposal that conforms to the RFP, is considered to offer the best value in terms of the evaluation factors, including price, and is determined to be in the best interest of the Government.

2. EVALUATION FACTORS:

2.1 Proposals will be evaluated on the basis of two criteria, **TECHNICAL** and **PRICE**. Award will be based upon evaluation of the following factors listed in descending order of importance:

2.2 **TECHNICAL CRITERIA:** The following technical criteria are listed in **descending order of importance**. See paragraph 2.4 below for a summary of the order of importance for these criteria.

1. **Quality of architectural design development of the Fitness Center Roofing Systems.**
2. **Project Schedule**

2.3 **PRICE:** Price is approximately equal in importance to technical criteria, and will be reviewed for reasonableness, but not rated. 2.4 **RELATIVE**

IMPORTANCE DEFINITIONS: For this evaluation, the following terms will be used to establish the relative importance of the technical criteria and sub-criteria:

- **Significantly More Important: The criterion is between two and one half (2.5) and three (3) times more important in value to the Government than another criterion.**

2.5 SUMMARY OF ORDER OF IMPORTANCE for Technical Criteria:

- Criterion 1 is significantly more important than criterion 2, and criterion 2 is significantly more important than criterion 3.

2.6 **TECHNICAL MERIT RATINGS:** Technical proposals will be evaluated and rated for each criterion using the descriptive scale outlined below:

- **Outstanding** - Information submitted demonstrates an exceptional capability to perform and clear understanding of all aspects of the requirements established by the RFP. The proposal contains no deficiencies or disadvantages, and few, if any, weaknesses that are minor in nature. The proposal significantly exceeds most or all requirements established by the RFP.
- **Above Average** - Information submitted demonstrates the offeror's potential to exceed performance or capability standards. Proposal reflects some strength(s) that may be of benefit to the Government. Few weaknesses or deficiencies are noted, and they are minor in nature. The proposal demonstrates that the requirements of the RFP are understood, that all requirements have been met, and some requirements exceeded.
- **Satisfactory (Neutral)** - Complete and comprehensive proposal reflecting an understanding of the scope and depth of the work. Information submitted demonstrates the offeror's potential to meet the performance requirements or capability standards set forth in the RFP. Few or no advantages or strengths are provided. The proposal contains only minor weaknesses and/or deficiencies. .
- **Marginal** - Information submitted demonstrates only a minimally acceptable understanding of the requirements. The submittal does not adequately address the specific criterion (or sub-criterion) and/or has several deficiencies.
- **Unsatisfactory** - Information submitted fails to meet the requirements established by the RFP. The proposal includes numerous deficiencies and/or gross omissions. Proposal does not reflect an understanding of the requirements of the criterion as established by the RFP.

2.7 Definitions of Strength, Weakness, Deficiency, and Uncertainty:

2.7.1. Strength – An aspect of a proposal that appreciably decreases the risk of unsuccessful contract performance or that represents a significant benefit to the Government.

2.7.2. Weakness: A flaw in the proposal that increases the risk of unsuccessful contract performance (i.e., may have an impact on schedule or quality requirements). A ***weakness need not be corrected*** for a proposal to be considered for award, but ***may*** affect the offeror's rating.

2.7.3. Deficiency: A material failure of a proposal to meet the Government requirement or a combination of significant weaknesses in a proposal that increases the risk of contract performance at an unacceptable level. A deficiency ***must be corrected*** for a proposal to be considered for award.

2.7.4. Uncertainty – Any aspect of the proposal for which the intent of the offeror is unclear because there may be more than one way to interpret the offer or because inconsistencies in the offer indicate that there may be an error, omission or mistake, Examples include a mistake in calculation or measurement and contradictory statement.

3. PROPOSAL CONTENTS: Proposals shall be submitted in two parts: (a) Technical proposal and (b) Price proposal. Each part shall be submitted in a separate envelope/package, with the type of proposal (i.e., Technical or Price) clearly printed on the outside of the envelope/package.

4. TECHNICAL PROPOSAL:

4.1 A **COVER LETTER** should be the **first page** of the technical proposal and should include signature of an official authorized to bind your firm, stating that your offer has an acceptance period of 90 calendar days from the date of signed offer for the base items, and acknowledging all amendments by number and date of issue

- (a) Solicitation number.
- (b) Name, address, and telephone and facsimile numbers of the firm signing the offer (and electronic address).
- (c) Names, titles and telephone and facsimile numbers (and electronic addresses) of persons authorized to negotiate on the firm's behalf with the Government in connection with this solicitation.
- (d) Name, title, and signature of the person authorized to sign the proposal.
- (e) A statement specifying agreement (see also (f) below) with all terms, conditions provisions included in the solicitation and agreement to furnish any and all items upon which prices are offered at the proposed item prices.

- (f) **DEVIATIONS FROM THE RFP:** In the cover letter, firms shall specifically identify, in a section entitled "Deviations," any deviations from the minimum RFP requirements. All alternates shall be addressed and expanded upon in the firm's proposal or Final Proposal Revision.
- (g) **IDENTIFICATION OF ITEMS EXCEEDING RFP REQUIREMENTS:** In an attachment to the cover letter, firms shall list all items exceeding the minimum RFP requirements. The list shall be entitled "IDENTIFICATION OF ITEMS EXCEEDING RFP REQUIREMENTS." All items listed shall be addressed and expanded upon in the firm's initial proposal or Final Proposal Revision.
- (h) **FINAL PROPOSAL REVISION:** If required to submit a Final Proposal Revision, the accompanying cover letter shall identify all changes made to the firm's initial proposal along with any deviations from the RFP (per (f) above). In addition, firms shall attach a list (per (g) above) of any additional items exceeding the minimum RFP requirements. This list shall also include elimination of, or revisions to, those items previously identified as exceeding the RFP.

4.2 **TECHNICAL DATA** consisting of drawings and supporting data (schedules, catalogue cuts, etc.) shall be furnished as part of the formal proposal and shall meet all requirements of the RFP, design standards, technical specifications, and referenced regulations. Data shall be specific and complete, and demonstrate thorough understanding of the requirements. Data shall include, where applicable, complete explanations of procedures and the schedule the firm proposes to follow. Additionally, data shall demonstrate the merit of the technical approach offered and shall be an orderly, specific, and complete document in every detail.

4.3 **TECHNICAL PROPOSAL** except for drawings, shall be submitted in standard letter, hardback loose-leaf binders with a Table of Contents. Contents of the binders shall be tabbed and labeled to afford easy identification. Contents shall follow the order of the evaluation criteria and pages shall be numbered. No material shall be incorporated by reference or reiteration of the RFP. Any such material will not be considered for evaluation. The Technical proposal shall be presented in a manner that allows it to "STAND ALONE" without the need to reference other documents.

4.4 **TECHNICAL PROPOSAL REQUIREMENTS:** Firms submitting proposals should limit submission to data essential for evaluation of proposals so that a minimum of time and monies are expended in preparing information required by the RFP.

4.4.1 Data submitted must reflect the designer's interpretation of criteria contained in the RFP. Drawing information should present basic concepts,

arrangements, and layouts. Arrangements, layout plans, and notes may be combined together on single sheets in order to simplify presentation, so long as clarity is maintained. Drawings are not intended to be construction detail plans.

4.4.2 Unnecessarily elaborate or voluminous brochures or other presentations, beyond those sufficient to present a complete and effective response, are not desired and may be construed as an indication of the firm's lack of cost-consciousness. Elaborate artwork, expensive paper and bindings, and expensive/extensive visual and other presentation aids are unnecessary.

4.5 MINIMUM SUBMITTAL REQUIREMENTS FOR THE TECHNICAL PROPOSAL

4.5.1 QUALITY OF ARCHITECTURAL DESIGN DEVELOPMENT OF THE FITNESS CENTER ROOFING SYSTEMS.

(a) Provide four (4) exterior (composite) elevations, roof plan and a perspective view of the proposed solution. Roof option drawings, plate numbers V-01, V-02, and V-03 are included as reference templates within the RFP documents for use of developing your own conceptual designs. The drawings submitted shall depict the proposed architectural concept.

(b) Provide narratives outlining how the design development of the roof system shall meet project criteria. At a minimum, the narrative shall address exterior materials (including a discussion of how the existing and/or new mechanical systems will integrate with the roof system.

(c) Catalog Cuts - Provide manufacturers data for the roofing systems proposed.

4.5.1.1 Evaluation of Architectural Design: Technical merit will be based on the degree which the proposal provides an aesthetically pleasing and functional roofing system for the entire fitness center complex.

4.5.2 PROJECT SCHEDULE: Provide an outline of the plan for design and construction of the design-build roof option with the assumption that the option will be awarded 120 calendar days after award of the contract base items. The schedule shall be prepared in the form of milestone scaled (Gantt Chart) summary network diagram and shall graphically indicate sequences proposed to accomplish each milestone work operation and appropriate interdependencies between various milestone events. The chart shall be prepared in different color codes or graphic symbolologies to differentiate base and option events. Identify critical elements of design and construction that could delay the entire project. The chart shall show the starting and completion times of all major events on a linear horizontal time scale beginning with the notice to proceed with the base contract items and indicating calendar days to completion. **The offeror must state the total number of calendar days proposed from receipt of initial**

notice to proceed through completion of the construction of the roof option. Offerors should base their schedule on the information provided in the following Sections of the RFP: Section 00800, SC-1, Commencement, Prosecution and Completion of Work; the Design Submittal Schedule requirements provided in Section 00810, paragraph 1.2 Design Requirements; and the requirements for phasing and access as specified in Section 01005, paragraphs 1.5 Construction Phasing and 1.6 Fitness Center Access Requirements. Limit the activities to those critical to timely overall completion of the project. **Allow 14 calendar days each for Government review of 65% and 95% design submittals as described in SECTION 00810.**

4.5.2.1 Evaluation of Schedule: The firm's planning and scheduling of the work (design, design reviews, and construction) will be evaluated. Consideration is given to the completeness, reasonableness, and realism of the proposed schedule, and identification of critical elements of design and construction that can delay the entire project.

5. TECHNICAL PROPOSAL FORMAT: The technical portion of the offeror's proposal may include two parts: 1) the written technical proposal and 2) the oral presentation.

5.1 WRITTEN TECHNICAL PROPOSAL. As a minimum, each copy of the written portion of the technical proposal should contain the following general format for the volumes specified in the following table. Pages should be numbered consecutively.

Technical Proposal (original and 6 copies required)

- Technical Proposal Cover Letter
- Table of Contents. (List all sections of the technical proposal)
- Quality of architectural design development of the Roofing Systems
- Project schedule
- Oral presentation materials (original and 6 copies are due separately in accordance with para. 5.2.5 of this section of the solicitation).

5.2 ORAL PRESENTATIONS. (IF REQUESTED BY CONTRACTING OFFICER)

5.2.1 Schedule of Presentations. After receipt and evaluation of technical proposals each of the firms **MAY** be required to give an oral presentation to the Government Technical Evaluation Team (TET). Notice will be issued for oral presentations on Monday, 10 November 2003. The date will be confirmed by the Notice.

5.2.1.1 Presentations will be held at Federal Center South, 4735 East Marginal Way South, Seattle, WA in the Fairmont Room on the second floor at the south end of the building.

5.2.1.2 The oral presentations will be conducted on/about Tuesday, 18 November 2003.

5.2.1.3 Each firm will be provided with the date and time of their presentation via written **and** telephonic notice before the due date for receipt of proposals. Requests from offerors to reschedule their presentations will not be allowed unless it is determined to be necessary by the Government to resolve problems encountered in the presentation process. The order of presentation will be determined by the Government.

5.2.2 Description of the Presentation Site.

5.2.2.1 The Fairmont Room is a large (double-room size) room with windows along the outer wall at the ceiling. The room is bright enough for the filming of a VHS videotape presentation, yet can be dimmed for presentations. To minimize presentation costs, multi-media presentations are not desired. The offerors are responsible for bringing the equipment they need to make their presentation. Offerors may inspect the presentation site prior to the presentation date by coordinating with Nancy Gary 208-764-3266.

5.2.3 Time Allowed for Presentations and Clarification of Oral Presentation Points. Offerors shall make their oral presentations in person to authorized Government representatives. Each firm shall have a maximum of one (1) hour in which to make its presentation. The one-hour time limit will begin with the Contracts Specialist (or Contracting Officer) direction to begin. Immediately after completion of each oral presentation, representatives may ask for clarification of any of the points addressed that were unclear and may ask for elaboration of points that were not adequately supported in the presentation. Any such interchange between the representatives and presenters will be for clarification only and will not constitute discussions within the meaning of FAR 15.306(a). Offerors will not be allowed to revise their written technical proposals after the oral presentation, unless the Government sends an official letter opening discussions. The oral presentation will not exceed one hour.

5.2.4 Offeror's Presentation Team. Only key personnel responsible for contract performance should present; not marketing staff or professional proposal presenters. Key personnel for the presentation team may include, but are not limited to, the construction firm's Project Manager, design firm's Project Manager, Architect of Record, Quality Control Manager for Construction, and Project On-Site Superintendent. The name of each member of the presentation team shall be provided to the contract specialist 24 hours prior to the presentation.

5.2.5 Submittal Requirements for the Oral Presentation. Offerors are to submit oral presentation materials in writing **after** their technical proposals **so that they are received at Seattle District Contracting Division no later than 3:00 p.m., Pacific Standard Time, on a date to be determined.** All presentations will be videotaped by a Government representative. The videotape shall become part of

the official record of this solicitation. Offerors wishing to have a copy of their briefing, should provide a video tape and a self-addressed package to Nancy Gary on the day of their presentation. No postage is necessary.

5.2.6 Purpose and Content of Oral Presentations.

The design build portion of this work is critical to the success of this project. Therefore, it is important for the government to obtain as much assurance as possible that the selected firm thoroughly understands the project's special requirements and can perform all functions necessary to make this portion of the project a success. Oral presentations are considered a way to augment the written proposal in communicating each firm's depth of understanding and further conveying the firm's approach for the roof design required for this project. Therefore, the offeror shall use the oral presentation to address, in detail, its understanding of the elements of technical evaluation criterion 1, Quality of architectural design development for Roof System, 2 Project schedule. At the beginning of the presentation, the name, position, and company affiliation of each presenter should be stated. ***The presentation will not encompass pricing information for will the presentation address other aspects of the project.***

5.2.7 Evaluation of the Oral Presentations.

The oral presentation will not be evaluated as a separate factor. The oral presentation will be used as part of the evaluation of technical evaluation criterion 1, Quality of architectural design development of the Fitness Center Roofing Systems. 2, Project schedule. The Government may use the information and insights gained from the oral presentations and responses to questions concerning the oral presentations to reassess the offeror's strengths and weaknesses associated with the offeror's architectural design. The oral presentation may result in a higher or lower rating, and therefore, a higher or lower overall rating of criterion one.

6. PRICE PROPOSAL FORMAT: The price proposal shall be submitted in ORIGINAL only, and must be signed by an official authorized to bind your organization. •

- Pricing Schedule (all schedule pages) (prices must be provided for all line items in the schedule)

NOTE: Price proposal is DUE AT SAME TIME as technical proposals.

7. EVALUATION AND AWARD PROCEDURES

7.1 TECHNICAL EVALUATION:

71.1 All technical proposals will be evaluated by a Technical Evaluation Team (TET). Pricing data will not be considered during this evaluation. Criteria for the technical evaluation are set forth elsewhere in the solicitation and will be the sole basis for determining the technical merit of proposals.

7.1.2 The TET shall utilize the relative importance definitions and technical merit ratings described earlier in this section of the solicitation to perform their technical evaluation.

7.1.3 To be considered for award, proposals must conform to the terms and conditions contained in the RFP. No proposal will be accepted that does not address all criteria specified in this solicitation or which includes stipulations or qualifying conditions unacceptable to the Government.

7.2 PRICE EVALUATION:

Price is approximately equal in importance to technical factors. proposal,. Pricing will be independently evaluated to determine reasonableness and to aid in the determination of the firm's understanding of the work and ability to perform the contract. Financial capacity and bonding ability will be verified.

7.3 SELECTION AND AWARD:

7.3.1 Subject to provisions contained herein, award shall be made to a single firm. The Government will select the best value offer based on technical merit, price and other pertinent factors.

7.3.2 **BEST VALUE ANALYSIS.** The Government is more concerned with obtaining an adequate technical solution for the design/build portion of this solution than with making award at the lowest overall cost to the Government. In determining the best value to the Government, the tradeoff process of evaluation will be utilized. The best value process permits tradeoffs among price and non-price factors, and allows the Government to consider award to other than the lowest priced offeror or other than the highest technically rated offeror. You are advised that equal consideration will be given to the evaluation of technical proposals rather than just lowest price. It is pointed out, however, that should technical competence between offerors be considered approximately the same, the cost or price could become more important in determining award.

8.3.3 **SELECTION AND AWARD WITHOUT DISCUSSIONS:** *It is the intent of the Government to make award based upon initial offers, without further discussions or additional information.* Therefore, initial proposals should be submitted based on the most favorable terms from a price and technical standpoint. Do not assume there will be an opportunity to clarify, discuss or revise proposals. If award is not made on initial offers, discussions will be conducted as described below.

8.3.4 **COMPETITIVE RANGE:** Should discussions/clarifications/oral presentations be warranted, the Contracting Officer will include all three MATOC contractors in the competitive range..

8.3.5 DISCUSSIONS: Written or oral (i.e., telephonic) discussions may be conducted by the Contracting Officer during which time firms may make revisions to their initial offers. If a firm's proposal is eliminated or otherwise removed from consideration for award during discussions, no further revisions to that firm's proposal will be accepted or considered. Discussions will culminate in a request for Final Proposal Revisions from remaining firms, the date and time which will be common to all firms.

8.3.6 AFTER DISCUSSIONS: If discussions are conducted, revisions to the proposals submitted during discussions, if any, will be evaluated by the TET and, if warranted, an adjustment made to the rating of the proposal previously assigned. After evaluation of any changes to proposed prices resulting from discussions, the Contracting Officer will perform a best value analysis based on the final prices and technical proposals. Selection will be made on the basis of the responsive, responsible firm whose proposal conforms to the RFP and represents the most advantageous offer to the Government, subject to availability of funds.

8.3.7 DEBRIEFINGS: Upon written request, unsuccessful firms will be debriefed and furnished the basis for the selection decision and contract award in accordance with FAR 15.505 and FAR 15.506.

8.3.8 PROPOSAL EXPENSES AND PRECONTRACT COSTS: This solicitation does not commit the Government to pay costs incurred in preparation and submission of initial and subsequent proposals or for other costs incurred prior to award of a formal contract.

8.3.9 RELEASE OF INFORMATION: After receipt of proposals and until contract award, source selection information will not be furnished to any firm.

SECTION 00860

FITNESS CENTER ROOFING SYSTEM (Optional Item 0006) DESIGN DEVELOPMENT TECHNICAL CRITERIA

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SECTION 00860

FITNESS CENTER ROOFING SYSTEM (Optional Item 0006) DESIGN DEVELOPMENT TECHNICAL CRITERIA

1.1 SCOPE

This portion of the project includes design and construction of a complete, functional and esthetically pleasing roofing system for the entire Fitness Center complex including existing buildings, pool house and the new addition. The new roofing system shall be predominately Architectural Standing Seam Metal Roofing conforming to the Mountain Home Air Force Base Architectural Standard and shall consist of Structural Standing Seam Metal Roof (Specification Section 07416) and Non-Structural Metal Roofing [Curved Panel – provided it meets ASCE-7 requirements] (Specification Section 07412). The new roofing system design shall incorporate all existing Fitness Center facilities and the new addition, and shall provide architectural continuity to the total complex. The existing swimming pool house barrel roof structural frame shall remain and be retrofitted with a new standing seam profile curved roof system. Roof design shall incorporate/account for drainage, ancillary equipment, structural and seismic loading.

1.2 GENERAL

The Contractor shall remove all existing components of the existing gym roof system(s) or portions of the roofing components which will be located under the new standing seam roof. This shall include removal and replacement of insulation if compromised with combustible material such as tar. The Contractor shall also inspect the total gym roofing system and replace defective areas including deteriorated or damaged substrate and insulation in like kind. For purposes of bidding the work the Contractor shall plan on replacing fifteen percent (15%) of the gym roofing substrate and insulation. Prior to removing existing roofing the Contractor shall test representative samples of the existing roofing to determine the presence of asbestos containing material. Asbestos sampling shall be in accordance with paragraph 1.6 Asbestos Sampling. Where the Contractor's design utilizes the existing roof or portions thereof in the completed design, the Contractor shall inspect the roofing system to remain in place and replace defective areas including deteriorated or damaged substrate and insulation and install a new single ply membrane roof with a minimum 20 year warranty. The swimming pool roof system requirements are provided in paragraph 1.2.1 below. The new roof systems shall be installed per all manufacturers instructions including substrate

preparation, ice shield, felts, flashings, expansion joints, seismic joints, scuppers, downspouts, snow guards, and etc. As-built drawings for reference are included in the attached drawings. Prior to disposal of demolition debris the Contractor shall test representative samples of the debris to determine the presence of lead. Lead sampling shall be in accordance with paragraph 1.7 Lead Sampling.

1.2.1 POOL HOUSE:

A report of Field Investigation and Analysis for the Swimming Pool Barrel Roof System, Building 2370 (dated Nov. 2002) is attached to this section. It indicates that the existing 1 inch by 8 inch sheathing over the existing furring is deteriorated with dry rot. As part of the work the Contractor shall include: removal of the sheathing and installation of a new plywood diaphragm; provide venting or an insulation system that will eliminate the moisture collection on the underside of the roof diaphragm decking; clean loose paint from all exposed glue-laminated arches; clean all corrosion on exposed steel glue-laminated arch buttress connections; provide a protective coating/treatment on all exposed to view wood surfaces associated with the above.

1.2.2 MECHANICAL EQUIPMENT

All of the existing roof equipment, including two air handling units, three roof hoods, three roof ventilators, two condensing units, two exhaust fans and two goose necks, are scheduled to be removed (in the base schedule work) except for one large air handling unit, one small exhaust fan and two roof hoods. The air handling unit is a 36,000 cfm unit, approximately 18 feet by 10 feet in size. The exhaust fan is a 400 cfm unit. The roof hoods are 54-inch square. The Contractor's design shall accommodate the equipment to remain.

1.2.3 FIRE DETECTION/ALARM SYSTEM

The attic spaces created between the structures and the new Fitness Center Roofing System shall be equipped with addressable heat detectors in accordance with NFPA 72 and 101. Contractor shall integrate the new heat detectors into the existing/new facility fire detection and alarm systems.

1.3 SITE ACCESS AND CONSTRUCTION PHASING

Site access and construction phasing for the work shall be in accordance with the requirements specified in Section 01005 Site Specific Supplementary Requirements.

1.4 DESIGN

After award and upon receipt of Notice to Proceed with Optional Item 0006 All Work to Design and Construct Integrated Standing Seam Metal Roof System for the Fitness Center, the Contractor shall prepare detailed project design documents that are suitable to adequately demonstrate that the design, materials and methods of construction are in accordance with the contract. The project design documents shall consist of drawings, design analysis, catalogue cuts and corresponding specifications prepared in CSI format. Section 00810 Design-Build Contract Procedures (Optional Item No. 0006) contains the requirements, procedures and schedules for Contractor preparation of and subsequent Government review of project design documents.

1.4.1 STRUCTURAL/SEISMIC DESIGN

The overall structural system shall be selected based on durability, maintainability, and cost-effectiveness. The design drawings shall contain in the General Notes a list of the design loading criteria, a list of the strengths of the engineering materials used, and any other pertinent data. Structural calculations to substantiate the structural design shall be submitted in accordance with the requirements specified in Section 00810. Structural design shall take into account all dead and live loads (rain, snow, wind and etc.) in accordance with ASCE 7-98. In addition that portion of the roof over the new addition (Optional Item 0006AA) shall also be designed in accordance with the requirements of TI 809-04 Seismic Design For Buildings/ AFM 32-1149 V1 (I) dated 31 December 1998 which is available on the internet at the following web address (URL) [<http://www.hnd.usace.army.mil/techinfo/ti.htm>] and the USGS Ground Motion maps referenced therein which are available at [<http://geohazards.cr.usgs.gov/eq/>]. The design criteria is as follows:

- | | |
|---|----|
| • Seismic Use Group: | 1 |
| • Short Period Spectral Acceleration, S _s (%G): | 30 |
| • One Second Period Spectral Acceleration, S ₁ (%G): | 10 |
| • Site Class: | D |

1.5 WARRANTIES

The standing seam metal roofing system and all of its components shall be covered by a 20-year minimum manufacturer's warranty to include material, accessories, ~~labor~~ and coatings. In addition, ~~the standing seam metal roofing system shall have a 5~~ 20 -year ~~(minimum)~~ weather tightness (installation) warranty which shall be provided by the General Contractor. See specification Sections 07412 and 07416 for additional information concerning the metal roofing systems and their associated warranties. Single

ply membrane roofing (if provided) shall be covered by a 20-year minimum manufacturer's warranty for the material and labor.

1.6 ASBESTOS SAMPLING

Asbestos sampling shall be such that it conforms to all applicable local, state, and federal regulations and protocols. This implies Asbestos Hazard Emergency Response Act (AHERA) standards (40 CFR 763.86). Sampling activities undertaken to determine the presence of asbestos containing material (ACM) shall be conducted by personnel who have successfully completed the EPA Model Accreditation Plan (MAP) "Building Inspector" training course required by 40 CFR 763, Subpart E, Appendix C. All bulk asbestos samples will be analyzed by polarized light microscopy (PLM) using the EPA "Interim Method for Determination of Asbestos in Bulk Insulation Samples" (40 CFR 764, Appendix A to Subpart F and EPA 600/M4-82-020). The Contractor shall deliver samples to a laboratory accredited under the National Institute of Standards and Technology (NIST) "National Voluntary Laboratory Accreditation Program (NVLAP)".

1.7 LEAD SAMPLING

Prior to disposal of demolition debris, the Contractor shall collect up to two (2) TCLP samples from each structure, representing the relative proportion of building materials present in the structure. Construction debris sample collection shall be in accordance with American Society of Testing and Materials (ASTM) method E 1908-97, "Standard Guide for Sample Selection of Debris Waste from a Building Renovation or Lead Abatement Project for Toxicity Characteristic Leaching Procedure (TCLP) Testing for Leachable Lead". If results from the TCLP testing are greater than 5 mg/L lead, the associated material shall be disposed in an permitted facility.

End of Section 00860

SECTION 07412

NON-STRUCTURAL METAL ROOFING

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 463/A 463M	(2000) Steel Sheet, Aluminum-Coated, by the Hot-Dip Process
ASTM A 653/A 653M	(2000) Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A 792/A 792M	(1999) Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
ASTM B 209M	(2000) Aluminum and Aluminum-Alloy Sheet and Plate (Metric)
ASTM D 226	(1997a) Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing
ASTM D 522	(1993a) Mandrel Bend Test of Attached Organic Coatings
ASTM D 523	(1989; R 1999) Specular Gloss
ASTM D 610	(1995) Evaluating Degree of Rusting on Painted Steel Surfaces
ASTM D 714	(1987; R 1994el) Evaluating Degree of Blistering of Paints
ASTM D 968	(1993) Abrasion Resistance of Organic Coatings by Falling Abrasive
ASTM D 1308	(1987; R 1998) Effect of Household Chemicals on Clear and Pigmented Organic Finishes
ASTM D 1654	(1992) Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments
ASTM D 2244	(1995) Calculation of Color Differences from Instrumentally Measured Color Coordinates

ASTM D 2247	(1999) Testing Water Resistance of Coatings in 100% Relative Humidity
ASTM D 2794	(1993; R 1999e1) Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
ASTM D 3359	(1997) Measuring Adhesion by Tape Test
ASTM D 4214	(1998) Evaluating Degree of Chalking of Exterior Paint Films
ASTM D 4397	(1996) Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications
ASTM D 5894	(1996) Standard Practice for Cyclic Salt Fog/UV Exposure of Painted Metal, (Alternating Exposures in a Fog/Dry Cabinet and a UV/Condensation Cabinet)
ASTM G 154	(2000a e1) Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials

UNDERWRITERS LABORATORIES (UL)

UL 580	(1994; Rev thru Feb 1998) Tests for Uplift Resistance of Roof Assemblies
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1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Metal Roofing; G

a. Drawings consisting of catalog cuts, flashing details, erection drawings, shop coating and finishing specifications, and other data as necessary to clearly describe materials, sizes, layouts, construction details, fasteners, and erection. Drawings shall be provided by the metal roofing manufacturer.

b. Drawings showing the UL 580, Class 90 tested roof system assembly.

SD-04 Samples

Accessories; G

One sample of each type of flashing, trim, fascia, closure, cap and similar items. Size shall be sufficient to show construction and configuration.

Roof Panels; G

One piece of each type and finish to be used, 225 mm long, full width.

Fasteners; G

Two samples of each type to be used with statement regarding intended use. If so requested, random samples of screws, bolts, nuts, and washers as delivered to the jobsite shall be taken in the presence of the Contracting Officer and provided to the Contracting Officer for testing to establish compliance with specified requirements.

Gaskets and Insulating Compounds; G

Two samples of each type to be used and descriptive data.

Sealant; G

One sample, approximately 0.5 kg, and descriptive data.

SD-07 Certificates

Roof Panels; G
Installation; G
Accessories; G

Certificates attesting that the panels and accessories conform to the specified requirements. Certificate for the roof assembly shall certify that the assembly complies with the material and fabrication requirements specified and is suitable for the installation at the indicated design slope. Certified laboratory test reports showing that the sheets to be furnished are produced under a continuing quality control program and that at least 3 representative samples of similar material to that which will be provided on this project have been previously tested and have met the quality standards specified for factory color finish.

Installer; G

Certification of installer.

Warranties; G

At the completion of the project, signed copies of the 520-year Weathertightness Warranty for Non-Structural Metal Roofing System, a sample copy of which is attached to this section, and the 20-year Manufacturer's Material and Weathertightness Warranties.

1.3 GENERAL REQUIREMENTS

The Contractor shall furnish a commercially available roofing system which satisfies the specified design and additional requirements contained herein. The roofing system shall be provided by the Contractor as a complete system, as tested and approved in accordance with UL 580. Roof panels, components, transitions, accessories, and assemblies shall be supplied by the same roofing system manufacturer.

1.3.1 Non-Structural Metal Roof System

The Non-Structural Metal Roof System covered under this specification shall include the entire roofing system; the metal roof panels, fasteners, connectors, roof securement components, and assemblies tested and approved in accordance with UL 580. The system shall be installed on a substrate as proposed by the contractor. In addition, the system shall consist of panel finishes, slip sheet, insulation, vapor retarder, all accessories, components, and trim and all connections with roof panels. This includes roof penetration items such as vents, curbs, skylights; interior or exterior gutters and downspouts, eaves, ridge, hip, valley, rake, gable, wall, or other roof system flashings installed and any other components specified within this contract to provide a weathertight roof system; and items specified in other sections of the specifications that are part of the system.

1.3.2 Manufacturer

The non-structural metal roofing system shall be the product of a manufacturer who has been in the practice of manufacturing metal roofs for a period of not less than 3 years and has been involved in at least five projects similar in size and complexity to this project.

1.3.3 Installer

The installer shall be certified by the metal roof manufacturer to have experience in installing at least three projects that are of comparable size, scope and complexity as this project for the particular roof system furnished. The installer may be either employed by the manufacturer or be an independent installer.

1.4 DESIGN LOADS

Non-structural Metal Roof System assemblies shall be tested as defined in UL 580 and shall be capable of resisting the wind uplift pressures shown on the contract drawings or, as a minimum, shall be approved to resist wind uplift pressures of UL 580, Class 90.

1.5 PERFORMANCE REQUIREMENTS

The metal roofing system supplied shall conform to the roof slope, the underlayment, and uplift pressures shown on the contract drawings. The Contractor shall furnish a commercially available roofing system which satisfies all the specified requirements.

1.6 DELIVERY AND STORAGE

Materials shall be delivered to the site in a dry and undamaged condition and stored out of contact with the ground. Materials shall be covered with weather tight coverings and kept dry. Material shall not be covered with plastic where such covering will allow sweating and condensation. Plastic may be used as tenting with air circulation allowed. Storage conditions shall provide good air circulation and protection from surface staining.

1.7 WARRANTIES

The Non-Structural Metal Roofing System shall be warranted as outlined below. Any emergency temporary repairs conducted by the owner shall not negate the warranties.

1.7.1 Contractor's Weathertightness Warranty

The Non-Structural Metal Roofing System shall be warranted by the Contractor on a no penal sum basis for a period of twenty years against material and workmanship deficiencies; system deterioration caused by exposure to the elements and/or inadequate resistance to specified service design loads, water leaks, and wind uplift damage. The roofing covered under this warranty shall include the entire roofing system, including but not limited to, the roof panels, fasteners, connectors, roof securement components, and assemblies tested and approved in accordance with UL 580. In addition, the system shall consist of panel finishes, slip sheet, insulation, vapor retarder, all accessories, components, and trim and all connections with roof panels. This includes roof penetration items such as vents, curbs, skylights; interior or exterior gutters and downspouts; eaves, ridge, hip, valley, rake, gable, wall, or other roof system flashings installed and any other components specified within this contract to provide a weathertight roof system; and items specified in other sections of the specifications that are part of the roof system. All material and workmanship deficiencies, system deterioration caused by exposure to the elements and/or inadequate resistance to service design loads, water leaks and wind uplift damage shall be repaired as approved by the Contracting Officer. See the attached Contractor's required warranty for issue resolution of warrantable defects. This warranty shall warrant and cover the entire cost of repair or replacement, including all material, labor, and related markups. The Contractor shall supplement this warranty with written warranties from the installer and system manufacturer, which shall be submitted along with Contractor's warranty; however, the Contractor shall be ultimately responsible for this warranty. The Contractor's written warranty shall be as outlined in attached WARRANTY FOR NON-STRUCTURAL METAL ROOF SYSTEM, and shall start upon final acceptance of the facility. It is required that the Contractor provide a separate bond in an amount equal to the installed total roofing system cost in favor of the owner (Government) covering the Contractor's warranty responsibilities effective throughout the 5-20-year Contractor's Weathertightness wWarranty period for the entire roofing system as outlined above.

1.7.2 Manufacturer's Material Warranties

The Contractor shall furnish, in writing, the following manufacturer's material warranties which cover all Non-Structural Metal Roofing System components such as roof panels, flashing, accessories, and trim, fabricated from coil material:

a. A manufacturer's 20 year material warranty warranting that the aluminum, zinc-coated steel, aluminum-zinc alloy coated steel or aluminum-coated steel as specified herein will not rupture, fail structurally, or perforate under normal atmospheric conditions at the site.

Liability under this warranty shall be limited exclusively to the cost of either repairing or replacing nonconforming, ruptured, perforated, or structurally failed coil material.

b. A manufacturer's 20 year exterior material finish warranty warranting that the factory color finish, under normal atmospheric conditions at the site, will not crack, peel, or delaminate; chalk in excess of a numerical rating of 8 when measured in accordance with ASTM D 4214; or fade or change colors in excess of 5 NBS units as measured in accordance with ASTM D 2244. Liability under this warranty is exclusively limited to refinishing or replacing the defective coated coil material.

c. A roofing system manufacturer's 20 year system weathertightness warranty.

1.8 COORDINATION MEETING

A coordination meeting shall be held within 45 days after contract award for mutual understanding of the metal roofing system contract requirements.

This meeting shall take place at the building site and shall include representatives from the Contractor, the roofing system manufacturer, the roofing supplier, the erector, the designer, and the Contracting Officer. All items required by paragraph SUBMITTALS shall be discussed, including applicable standard manufacturer shop drawings, and the approval process. The Contractor shall coordinate time and arrangements for the meeting.

PART 2 PRODUCTS

2.1 ROOF PANELS

Panels shall be steel and shall have a factory color finish. Length of sheets shall be sufficient to cover the entire length of any unbroken roof slope for slope lengths that do not exceed 9 m. Sheets longer than 9 m may be furnished if approved by the Contracting Officer. Width of sheets shall provide nominal 600 mm of coverage in place. Design provisions shall be made for thermal expansion and contraction consistent with the type of system to be used. All sheets shall be either square-cut or miter-cut. The ridge cap shall be installed as recommended by the metal roofing manufacturer. Height of corrugations, ribs, or seams, at overlap of adjacent roof sheets shall be the building manufacturer's standard for the indicated roof slope.

2.1.1 Steel Panels

Zinc-coated steel conforming to ASTM A 653/A 653M; aluminum-zinc alloy coated steel conforming to ASTM A 792/A 792M, AZ 55 coating; or aluminum-coated steel conforming to ASTM A 463/A 463M, Type 2, coating designation T2 65. Uncoated roof panels shall be 0.6 mm thick minimum. Panels shall be within 95 percent of the nominal thickness. Prior to shipment, mill finish panels shall be treated with a passivating chemical and oiled to inhibit the formation of oxide corrosion products. Panels that have become wet during shipment and have started to oxidize shall be rejected.

2.1.2 Aluminum Panels

Alloy conforming to ASTM B 209M , temper as required for the forming operation, minimum 0.8 mm thick.

2.2 ACCESSORIES

Accessories shall be compatible with the roofing furnished. Flashing, trim, metal closure strips, caps, and similar metal accessories shall be not less than the minimum thicknesses specified for roof panels. Exposed metal accessories shall be finished to match the panels furnished. Molded closure strips shall be bituminous-saturated fiber, closed-cell or solid-cell synthetic rubber or neoprene, or polyvinyl chloride premolded to match configuration of the panels and shall not absorb or retain water.

2.3 FASTENERS

Fasteners for roof panels shall be zinc-coated steel, aluminum, or nylon capped steel, type and size as recommended by the manufacturer to meet the performance requirements. Fasteners for accessories shall be the manufacturer's standard. Exposed roof fasteners shall be gasketed or have gasketed washers on the exterior side of the roofing to waterproof the fastener penetration. Washer material shall be compatible with the panels; and gasketed portion of fasteners or washers shall be neoprene or other equally durable elastomeric material approximately 3 mm thick.

2.4 FACTORY COLOR FINISH

Panels shall have a factory applied polyvinylidene fluoride finish on the exposed side. The exterior finish shall consist of a baked-on topcoat with an appropriate prime coat. Color shall match the color indicated on the drawings. The exterior coating shall be a nominal 0.025 thickness consisting of a topcoat of not less than 0.018 mm dry film thickness and the paint manufacturer's recommended primer of not less than 0.005 mm thickness. The exterior color finish shall meet the test requirements specified below.

2.4.1 Cyclic Salt Fog/UV Test

A sample of the sheets shall withstand a cyclic corrosion test for a minimum of 2016 hours in accordance with ASTM D 5894, including the scribe requirement in the test. Immediately upon removal of the panel from the test, the coating shall receive a rating of not less than 10, no blistering, as determined by ASTM D 714; 10, no rusting, as determined by ASTM D 610; and a rating of 6, over 2.0 to 3.0 mm failure at scribe, as determined by ASTM D 1654.

2.4.2 Formability Test

When subjected to testing in accordance with ASTM D 522 Method B, 3 mm diameter mandrel, the coating film shall show no evidence of fracturing to the naked eye.

2.4.3 Accelerated Weathering, Chalking Resistance and Color Change

A sample of the sheets shall be tested in accordance with ASTM G 154, test condition UVA-340 lamp, 4h UV at 60 degrees C followed by 4h CON at 50 degrees C for 24 total hours. The coating shall withstand the weathering test without cracking, peeling, blistering, loss of adhesion of the protective coating, or corrosion of the base metal. Protective coating with an adhesion rating of less than 4B when tested in accordance with ASTM D 3359, Test Method B, shall be considered as an area indicating loss of adhesion. Following the accelerated weathering test, the coating shall have a chalk rating not less than No. 8 in accordance with ASTM D 4214 test procedures, and the color change shall not exceed 5 CIE or Hunter Lab color difference (delta E) units in accordance with ASTM D 2244. For sheets required to have a low gloss finish, the chalk rating shall be not less than No. 6 and the color difference shall be not greater than 7 units.

2.4.4 Humidity Test

When subjected to a humidity cabinet test in accordance with ASTM D 2247 for 1000 hours, a scored panel shall show no signs of blistering, cracking, creepage or corrosion.

2.4.5 Impact Resistance

Factory-painted sheet shall withstand direct and reverse impact in accordance with ASTM D 2794 13 mm diameter hemispherical head indenter, equal to 6.7 times the metal thickness in mm, expressed in N-meters, with no cracking.

2.4.6 Abrasion Resistance Test

When subjected to the falling sand test in accordance with ASTM D 968, Method A, the coating system shall withstand a minimum of 50 liters of sand before the appearance of the base metal. The term "appearance of base metal" refers to the metallic coating on steel or the aluminum base metal.

2.4.7 Specular Gloss

Finished roof surfaces shall have a specular gloss value of 10 or less at an angle of 85 degrees when measured in accordance with ASTM D 523.

2.4.8 Pollution Resistance

Coating shall show no visual effects when covered spot tested in a 10 percent hydrochloric acid solution for 24 hours in accordance with ASTM D 1308.

2.5 UNDERLAYMENTS

2.5.1 Felt Underlayment

Felt underlayment shall be No. 30 felt in accordance with ASTM D 226, Type II.

2.5.2 Rubberized Underlayment

Rubberized underlayment shall be equal to "Ice and Water Shield" as manufactured by Grace Construction Products, "Winterguard" as manufactured by CertainTeed Corporation, or "Weather Watch Ice and Water Barrier" as manufactured by GAF Building Materials Corporation.

2.5.3 Slip Sheet

Slip Sheet shall be 0.24 kg per square meter rosin sized unsaturated building paper.

2.6 SEALANT

Sealant shall be an elastomeric type containing no oil or asphalt. Exposed sealant shall be colored to match the applicable building color and shall cure to a rubberlike consistency. Sealant placed in the roof panel standing seam ribs shall be provided in accordance with the manufacturer's recommendations.

2.7 GASKETS AND INSULATING COMPOUNDS

Gaskets and insulating compounds shall be nonabsorptive and suitable for insulating contact points of incompatible materials. Insulating compounds shall be nonrunning after drying.

2.8 VAPOR RETARDER

2.8.1 Vapor Retarders Separate from Insulation

Vapor retarder material shall be polyethylene sheeting conforming to ASTM D 4397. A single ply of 0.25 mm polyethylene sheet; or, at the Contractor's option, a double ply of 0.15 mm polyethylene sheet shall be used. A fully compatible polyethylene tape which has equal or better water vapor control characteristics than the vapor retarder material shall be provided. A cloth industrial duct tape in a utility grade shall also be provided to use as needed to protect the vapor retarder from puncturing.

2.8.2 Slip Sheet for Use With Vapor Retarder

Slip sheet for use with vapor retarder shall be a 0.24 kg per square meter rosin-sized, unsaturated building paper.

PART 3 EXECUTION

3.1 INSTALLATION

Installation shall be in accordance with the manufacturer's erection instructions and drawings. Dissimilar materials which are not compatible when contacting each other shall be insulated by means of gaskets or insulating compounds. Improper or mislocated drill holes shall be plugged with an oversize screw fastener and gasketed washer; however, sheets with an excess of such holes or with such holes in critical locations shall not be used. Exposed surfaces and edges shall be kept clean and free from sealant, metal cuttings, hazardous burrs, and other foreign material. Stained, discolored, or damaged sheets shall be removed from the site.

3.1.1 Roofing

Side laps shall be laid away from the prevailing winds. Side and end lap distances, joint sealing, and fastening and spacing of fasteners shall be in accordance with manufacturer's standard practice. Spacing of exposed fasteners shall present an orderly appearance. Side laps and end laps of roof panels and joints at accessories shall be sealed. Fasteners shall be driven normal to the surface. Method of applying joint sealant shall conform to the manufacturer's recommendation to achieve a complete weathertight installation. Accessories shall be fastened into substrate, except as otherwise approved. Closure strips shall be provided as indicated and where necessary to provide weathertight construction.

3.1.2 Field Forming of Roof Panels for Unique Areas

When roofing panels are formed from factory-color-finished steel coils at the project site, the same care and quality control measures that are taken in shop forming of roofing panels shall be observed. Rollformer shall be operated by the metal roofing manufacturer's approved installer. In cold weather conditions, preheating of the steel coils to be field formed shall be performed as necessary just prior to the rolling operations.

3.1.3 Underlayment

Underlayment types shall be installed where shown on the drawings; they shall be installed directly over the substrate. If a roof panel rests directly on the underlayments, a slip sheet shall be installed as a top layer, beneath the metal roofing panels, to prevent adhesion. All underlayments shall be installed so that successive strips overlap the next

lower strip in shingle fashion. Underlayments shall be installed in accordance with the manufacturer's written instructions. The underlayments shall ensure that any water that penetrates below the metal roofing panels will drain outside of the building envelope.

3.2 INSULATION INSTALLATION

Insulation shall be installed as indicated and in accordance with manufacturer's instructions. Insulation shall be continuous over entire roof surface. Where expansion joints, terminations, and other connections are made, the cavity shall be filled with batt insulation and vapor retarder providing equivalent R-Value and perm rating as remaining insulation.

3.2.1 Board Insulation in Warm Climates

Rigid or semirigid board insulation shall be laid in close contact. If more than one layer of insulation is required, joints in the second layer shall be offset from joints in the first layer. A layer of blanket insulation shall be placed over the rigid or semirigid board insulation to be compressed against the underside of the metal roofing to reduce thermal bridging, dampen noise, and prevent roofing flutter. This layer of blanket insulation shall be compressed a minimum of 50 percent. Rigid insulation shall be attached to the metal roof deck with bearing plates and fasteners, as recommended by the insulation manufacturer, so that the insulation joints are held tight against each other, with no less than 1 fastener and bearing plate per 0.37 square meter of insulation. Layout and joint pattern of insulation and fasteners shall be indicated on the shop drawings.

3.2.2 Board Insulation in Cool Climates

A layer of unfaced blanket insulation shall be placed over the board insulation and held tight against the metal roofing.

3.3 PROTECTION OF VAPOR RETARDER FROM ROOF DECK

A cloth industrial duct tape shall be adhered over all the seams of metal roof decking, at any penetration edges, and at all surface areas exhibiting sharp burrs or similar protrusions. For other types of roof decking, cloth industrial duct tape shall be adhered over all irregularities which could potentially puncture polyethylene membrane.

3.4 VAPOR RETARDER INSTALLATION

3.4.1 Integral Facing on Blanket Insulation

Integral facing on blanket insulation shall have the facing lapped and sealed with a compatible tape to provide a vapor tight membrane.

3.4.2 Polyethylene Vapor Retarder

The polyethylene vapor retarder membrane shall be installed over the entire surface. A fully compatible polyethylene tape shall be used to seal the edges of the sheets to provide a vapor tight membrane. Sheet edges shall be lapped not less than 150 mm. Sufficient material shall be provided to avoid inducing stresses in the sheets due to stretching or binding. All tears or punctures that are visible in the finished surface at any time during the construction process shall be sealed with polyethylene tape.

3.5 SLIP SHEET INSTALLATION

A slip sheet shall be laid over the blanket insulation facing to prevent the vinyl facing from adhering to the metal roofing.

CONTRACTOR'S TWENTY (20) YEAR NO PENAL SUM WARRANTY
FOR
NON-STRUCTURAL METAL ROOF SYSTEM

FACILITY DESCRIPTION_____

BUILDING NUMBER:_____

CORPS OF ENGINEERS CONTRACT NUMBER:_____

CONTRACTOR

CONTRACTOR:_____

ADDRESS:_____

POINT OF CONTACT:_____

TELEPHONE NUMBER:_____

OWNER

OWNER:_____

ADDRESS:_____

POINT OF CONTACT:_____

TELEPHONE NUMBER:_____

CONSTRUCTION AGENT

CONSTRUCTION AGENT:_____

ADDRESS:_____

POINT OF CONTACT:_____

TELEPHONE NUMBER:_____

CONTRACTOR'S TWENTY (20) YEAR NO PENAL SUM WARRANTY
FOR
NON-STRUCTURAL METAL ROOF SYSTEM
(continued)

THE NON-STRUCTURAL METAL ROOF SYSTEM INSTALLED ON THE ABOVE NAMED BUILDING IS WARRANTED BY _____ FOR A PERIOD OF TWENTY (20) YEARS AGAINST WORKMANSHIP AND MATERIAL DEFICIENCIES, WIND DAMAGE, STRUCTURAL FAILURE, AND LEAKAGE. THE NON-STRUCTURAL METAL ROOFING SYSTEM COVERED UNDER THIS WARRANTY SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO, THE FOLLOWING: THE ENTIRE ROOFING SYSTEM, MANUFACTURER SUPPLIED FRAMING AND STRUCTURAL MEMBERS, METAL ROOF PANELS, FASTENERS, CONNECTORS, ROOF SECUREMENT COMPONENTS, AND ASSEMBLIES TESTED AND APPROVED IN ACCORDANCE WITH UL 580. IN ADDITION, THE SYSTEM PANEL FINISHES, SLIP SHEET, INSULATION, VAPOR RETARDER, ALL ACCESSORIES, COMPONENTS, AND TRIM AND ALL CONNECTIONS ARE INCLUDED. THIS INCLUDES ROOF PENETRATION ITEMS SUCH AS VENTS, CURBS, SKYLIGHTS; INTERIOR OR EXTERIOR GUTTERS AND DOWNSPOUTS; EAVES, RIDGE, HIP, VALLEY, RAKE, GABLE, WALL, OR OTHER ROOF SYSTEM FLASHINGS INSTALLED AND ANY OTHER COMPONENTS SPECIFIED WITHIN THIS CONTRACT TO PROVIDE A WEATHERTIGHT ROOF SYSTEM; AND ITEMS SPECIFIED IN OTHER SECTIONS OF THE SPECIFICATIONS THAT ARE PART OF THE NON-STRUCTURAL METAL ROOFING SYSTEM.

ALL MATERIAL DEFICIENCIES, WIND DAMAGE, STRUCTURAL FAILURE, AND LEAKAGE ASSOCIATED WITH THE NON-STRUCTURAL METAL ROOF SYSTEM COVERED UNDER THIS WARRANTY SHALL BE REPAIRED AS APPROVED BY THE CONTRACTING OFFICER. THIS WARRANTY SHALL COVER THE ENTIRE COST OF REPAIR OR REPLACEMENT, INCLUDING ALL MATERIAL, LABOR, AND RELATED MARKUPS. THE ABOVE REFERENCED WARRANTY COMMENCED ON THE DATE OF FINAL ACCEPTANCE ON _____ AND WILL REMAIN IN EFFECT FOR STATED DURATION FROM THIS DATE.

SIGNED, DATED, AND NOTARIZED (BY COMPANY PRESIDENT)

(Company President)

(Date)

CONTRACTOR'S TWENTY (20) YEAR NO PENAL SUM WARRANTY
FOR
NON-STRUCTURAL METAL ROOFING SYSTEM
(continued)

THE CONTRACTOR SHALL SUPPLEMENT THIS WARRANTY WITH WRITTEN WARRANTIES FROM THE MANUFACTURER AND/OR INSTALLER OF THE NON-STRUCTURAL METAL ROOFING SYSTEM, WHICH SHALL BE SUBMITTED ALONG WITH THE CONTRACTOR'S WARRANTY. HOWEVER, THE CONTRACTOR WILL BE ULTIMATELY RESPONSIBLE FOR THIS WARRANTY AS OUTLINED IN THE SPECIFICATIONS AND AS INDICATED IN THIS WARRANTY EXAMPLE.

EXCLUSIONS FROM COVERAGE

1. NATURAL DISASTERS, ACTS OF GOD (LIGHTNING, FIRE, EXPLOSIONS, SUSTAINED WIND FORCES IN EXCESS OF THE DESIGN CRITERIA, EARTHQUAKES, AND HAIL).
2. ACTS OF NEGLIGENCE OR ABUSE OR MISUSE BY GOVERNMENT OR OTHER PERSONNEL, INCLUDING ACCIDENTS, VANDALISM, CIVIL DISOBEDIENCE, WAR, OR DAMAGE CAUSED BY FALLING OBJECTS.
3. DAMAGE BY STRUCTURAL FAILURE, SETTLEMENT, MOVEMENT, DISTORTION, WARPAGE, OR DISPLACEMENT OF THE BUILDING STRUCTURE OR ALTERATIONS MADE TO THE BUILDING.
4. CORROSION CAUSED BY EXPOSURE TO CORROSIVE CHEMICALS, ASH OR FUMES GENERATED OR RELEASED INSIDE OR OUTSIDE THE BUILDING FROM CHEMICAL PLANTS, FOUNDRIES, PLATING WORKS, KILNS, FERTILIZER FACTORIES, PAPER PLANTS, AND THE LIKE.
5. FAILURE OF ANY PART OF THE NON-STRUCTURAL METAL ROOF DUE TO ACTIONS BY THE OWNER TO INHIBIT FREE DRAINAGE OF WATER FROM THE ROOF AND GUTTERS AND DOWNSPOUTS OR ALLOW PONDING WATER TO COLLECT ON THE ROOF SURFACE. CONTRACTOR'S DESIGN SHALL INSURE FREE DRAINAGE FROM THE ROOF AND NOT ALLOW PONDING WATER.
6. THIS WARRANTY APPLIES TO THE NON-STRUCTURAL METAL ROOFING SYSTEM. IT DOES NOT INCLUDE ANY CONSEQUENTIAL DAMAGE TO THE BUILDING INTERIOR OR CONTENTS WHICH IS COVERED BY THE WARRANTY OF CONSTRUCTION CLAUSE INCLUDED IN THIS CONTRACT.
7. THIS WARRANTY CANNOT BE TRANSFERRED TO ANOTHER OWNER WITHOUT WRITTEN CONSENT OF THE CONTRACTOR; AND THIS WARRANTY AND THE CONTRACT PROVISIONS WILL TAKE PRECEDENCE OVER ANY CONFLICTS WITH STATE STATUTES.

**

CONTRACTOR'S TWENTY (20) YEAR NO PENAL SUM WARRANTY
FOR
NON-STRUCTURAL METAL ROOF SYSTEM
(continued)

**REPORTS OF LEAKS AND ROOF SYSTEM DEFICIENCIES SHALL BE RESPONDED TO WITHIN 48 HOURS OF RECEIPT OF NOTICE, BY TELEPHONE OR IN WRITING, FROM EITHER THE OWNER OR CONTRACTING OFFICER. EMERGENCY REPAIRS TO PREVENT FURTHER ROOF LEAKS SHALL BE INITIATED IMMEDIATELY; A WRITTEN PLAN SHALL BE SUBMITTED FOR APPROVAL TO REPAIR OR REPLACE THIS ROOF SYSTEM WITHIN SEVEN (7) CALENDAR DAYS. ACTUAL WORK FOR PERMANENT REPAIRS OR REPLACEMENT SHALL BE STARTED WITHIN 30 DAYS AFTER RECEIPT OF NOTICE, AND COMPLETED WITHIN A REASONABLE TIME FRAME. IF THE CONTRACTOR FAILS TO ADEQUATELY RESPOND TO THE WARRANTY PROVISIONS, AS STATED IN THE CONTRACT AND AS CONTAINED HEREIN, THE CONTRACTING OFFICER MAY HAVE THE NON-STRUCTURAL METAL ROOF SYSTEM REPAIRED OR REPLACED BY OTHERS AND CHARGE THE COST TO THE CONTRACTOR.

IN THE EVENT THE CONTRACTOR DISPUTES THE EXISTENCE OF A WARRANTABLE DEFECT, THE CONTRACTOR MAY CHALLENGE THE OWNER'S DEMAND FOR REPAIRS AND/OR REPLACEMENT DIRECTED BY THE OWNER OR CONTRACTING OFFICER EITHER BY REQUESTING A CONTRACTING OFFICER'S DECISION UNDER THE CONTRACT DISPUTES ACT, OR BY REQUESTING THAT AN ARBITRATOR RESOLVE THE ISSUE. THE REQUEST FOR AN ARBITRATOR MUST BE MADE WITHIN 48 HOURS OF BEING NOTIFIED OF THE DISPUTED DEFECTS. UPON BEING INVOKED, THE PARTIES SHALL, WITHIN TEN (10) DAYS, JOINTLY REQUEST A LIST OF FIVE (5) ARBITRATORS FROM THE FEDERAL MEDIATION AND CONCILIATION SERVICE. THE PARTIES SHALL CONFER WITHIN TEN (10) DAYS AFTER RECEIPT OF THE LIST TO SEEK AGREEMENT ON AN ARBITRATOR. IF THE PARTIES CANNOT AGREE ON AN ARBITRATOR, THE CONTRACTING OFFICER AND THE PRESIDENT OF THE CONTRACTOR'S COMPANY WILL STRIKE ONE (1) NAME FROM THE LIST ALTERNATIVELY UNTIL ONE (1) NAME REMAINS. THE REMAINING PERSON SHALL BE THE DULY SELECTED ARBITRATOR. THE COSTS OF THE ARBITRATION, INCLUDING THE ARBITRATOR'S FEE AND EXPENSES, COURT REPORTER, COURTROOM OR SITE SELECTED, ETC., SHALL BE BORNE EQUALLY BETWEEN THE PARTIES. EITHER PARTY DESIRING A COPY OF THE TRANSCRIPT SHALL PAY FOR THE TRANSCRIPT. A HEARING WILL BE HELD AS SOON AS THE PARTIES CAN MUTUALLY AGREE. A WRITTEN ARBITRATOR'S DECISION WILL BE REQUESTED NOT LATER THAN 30 DAYS FOLLOWING THE HEARING. THE DECISION OF THE ARBITRATOR WILL NOT BE BINDING; HOWEVER, IT WILL BE ADMISSIBLE IN ANY SUBSEQUENT APPEAL UNDER THE CONTRACT DISPUTES ACT.

A FRAMED COPY OF THIS WARRANTY SHALL BE POSTED IN THE MECHANICAL ROOM OR OTHER APPROVED LOCATION DURING THE ENTIRE WARRANTY PERIOD.

-- End of Section --

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SECTION 07416

STRUCTURAL STANDING SEAM METAL ROOF (SSSMR) SYSTEM

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ALUMINUM ASSOCIATION (AA)

AA Design Manual	(2000) Aluminum Design Manual: Specification & Guidelines for Aluminum Structures
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AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC ASD Spec S335	(1989) Specification for Structural Steel Buildings - Allowable Stress Design, Plastic Design
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AMERICAN IRON AND STEEL INSTITUTE (AISI)

AISI Cold-Formed Mnl	(1996) Cold-Formed Steel Design Manual
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AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 463/A 463M	(2000) Steel Sheet, Aluminum-Coated, by the Hot-Dip Process
ASTM A 653/A 653M	(2000) Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A 792/A 792M	(1999) Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
ASTM B 209	(2000) Aluminum and Aluminum-Alloy Sheet and Plate
ASTM B 209M	(2000) Aluminum and Aluminum-Alloy Sheet and Plate (Metric)
ASTM C 1177/C 1177M	(1999) Glass Mat Gypsum Substrate for Use as Sheathing
ASTM C 1289	(1998) Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
ASTM C 518	(1998) Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus

ASTM C 991	(1998) Flexible Glass Fiber Insulation for Pre-Engineered Metal Buildings
ASTM D 1308	(1987; R 1998) Effect of Household Chemicals on Clear and Pigmented Organic Finishes
ASTM D 1654	(1992) Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments
ASTM D 2244	(1995) Calculation of Color Differences from Instrumentally Measured Color Coordinates
ASTM D 2247	(1999) Testing Water Resistance of Coatings in 100% Relative Humidity
ASTM D 2794	(1993; R 1999e1) Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
ASTM D 3359	(1997) Measuring Adhesion by Tape Test
ASTM D 4214	(1998) Evaluating Degree of Chalking of Exterior Paint Films
ASTM D 4397	(1996) Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications
ASTM D 522	(1993a) Mandrel Bend Test of Attached Organic Coatings
ASTM D 523	(1989; R 1999) Specular Gloss
ASTM D 5894	(1996) Standard Practice for Cyclic Salt Fog/UV Exposure of Painted Metal, (Alternating Exposures in a Fog/Dry Cabinet and a UV/Condensation Cabinet)
ASTM D 610	(1995) Evaluating Degree of Rusting on Painted Steel Surfaces
ASTM D 714	(1987; R 1994e1) Evaluating Degree of Blistering of Paints
ASTM D 968	(1993) Abrasion Resistance of Organic Coatings by Falling Abrasive
ASTM E 1592	(1998) Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference
ASTM E 84	(2000a) Surface Burning Characteristics of Building Materials
ASTM E 96	(2000) Water Vapor Transmission of Materials

ASTM G 154 (2000ael) Standard Practice for Operating
Fluorescent Light Apparatus for UV
Exposure of Nonmetallic Materials

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)

ASCE 7 (1998) Minimum Design Loads for Buildings
and Other Structures

STEEL JOIST INSTITUTE (SJI)

SJI Specs & Tables (1994) Standard Specifications Load Tables
and Weight Tables for Steel Joists and
Joist Girders

1.2 GENERAL REQUIREMENTS

The Contractor shall furnish a commercially available roofing system which satisfies all requirements contained herein and has been verified by load testing and independent design analyses to meet the specified design requirements.

1.2.1 Structural Standing Seam Metal Roof (SSSMR) System

The SSSMR system covered under this specification shall include the entire roofing system; the standing seam metal roof panels, fasteners, connectors, roof securement components, and assemblies tested and approved in accordance with ASTM E 1592. In addition, the system shall consist of panel finishes, slip sheet, insulation, vapor retarder, all accessories, components, and trim and all connections with roof panels. This includes roof penetration items such as vents, curbs, skylights; interior or exterior gutters and downspouts; eaves, ridge, hip, valley, rake, gable, wall, or other roof system flashings installed and any other components specified within this contract to provide a weathertight roof system.

1.2.2 Manufacturer

The SSSMR system shall be the product of a manufacturer who has been in the practice of manufacturing and designing SSSMR systems for a period of not less than 3 years and has been involved in at least five projects similar in size and complexity to this project.

1.2.3 Installer

The installer shall be certified by the SSSMR system manufacturer to have experience in installing at least three projects that are of comparable size, scope and complexity as this project for the particular roof system furnished. The installer may be either employed by the manufacturer or be an independent installer.

1.3 DESIGN REQUIREMENTS

The design of the SSSMR system shall be provided by the Contractor as a complete system. Members and connections not indicated on the drawings shall be designed by the Contractor. Roof panels, components, transitions, accessories, and assemblies shall be supplied by the same roofing system manufacturer.

1.3.1 Design Criteria

Design criteria shall be in accordance with ASCE 7.

1.3.2 Dead Loads

The dead load shall be the weight of the SSSMR system. Collateral loads such as sprinklers, mechanical and electrical systems, and ceilings shall not be attached to the panels.

1.3.3 Live Loads

1.3.3.1 Concentrated Loads

The panels and anchor clips shall be capable of supporting a 1335 N concentrated load. The concentrated load shall be applied at the panel midspan and will be resisted by a single standing seam metal roof panel assumed to be acting as a beam. The undeformed shape of the panel shall be used to determine the section properties.

1.3.3.2 Uniform Loads

The panels and concealed anchor clips shall be capable of supporting a minimum uniform live load of 960 Pa.

1.3.4 Roof Snow Loads

The design roof snow loads shall be as shown on the contract drawings.

1.3.5 Wind Loads

The design wind uplift pressure for the roof system shall be as shown on the contract drawings. The design uplift force for each connection assembly shall be that pressure given for the area under consideration, multiplied by the tributary load area of the connection assembly. The safety factor listed below shall be applied to the design force and compared against the ultimate capacity. Prying shall be considered when figuring fastener design loads.

- a. Single fastener in each connection.....3.0
- b. Two or more fasteners in each connection...2.25

1.3.6 Thermal Loads

Roof panels shall be free to move in response to the expansion and contraction forces resulting from a total temperature range of 104 degrees C during the life of the structure.

1.3.7 Framing Members Supporting the SSSMR System

Any additions/revisions to framing members supporting the SSSMR system to accommodate the manufacturer/fabricator's design shall be the Contractor's responsibility and shall be submitted for review and approval. New or revised framing members and their connections shall be designed in accordance with AISI Cold-Formed Mnl . Maximum deflection under applied live load, snow, or wind load shall not exceed 1/180 of the span length.

1.3.8 Roof Panels Design

Steel panels shall be designed in accordance with AISI Cold-Formed Mnl. Aluminum panels shall be designed in accordance with AA Design Manual. The structural section properties used in the design of the panels shall be determined using the unloaded shape of the roof panels. The calculated panel deflection from concentrated loads shall not exceed 1/180 of the span length. The calculated panel deflection under applied live load, snow, or wind load shall not exceed 1/180 times the span length. Deflections shall be based on panels being continuous across three or more supports. Deflection shall be calculated and measured along the major ribs of the panels.

1.3.9 Accessories and Their Fasteners

Accessories and their fasteners shall be capable of resisting the specified design wind uplift forces and shall allow for thermal movement of the roof panel system. Exposed fasteners shall not restrict free movement of the roof panel system resulting from thermal forces. There shall be a minimum of two fasteners per clip. Single fasteners with a minimum diameter of 9 mm will be allowed when the supporting structural members are prepunched or predrilled.

1.4 PERFORMANCE REQUIREMENTS

The SSSMR shall be tested for wind uplift resistance in accordance with ASTM E 1592; SSSMR systems previously tested and approved by the Corps of Engineers' STANDARD TEST METHOD FOR STRUCTURAL PERFORMANCE OF SSMRS BY UNIFORM STATIC AIR PRESSURE DIFFERENCE may be acceptable. Two tests shall be performed. Test 1 shall simulate the edge condition with one end having crosswise restraint and other end free of crosswise restraint. The maximum span length for the edge condition shall be 750 mm. Test 2 shall simulate the interior condition with both ends free of crosswise restraint. The maximum span length for the interior condition shall be 1.5 m. External reinforcement, such as clamps on the ribs, shall not be installed to improve uplift resistance. Bolts through seams shall not be installed.

1.5 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Structural Standing Seam Metal Roof System; G

Metal roofing drawings and specifications and erection drawings; shop coating and finishing specifications; and other data as necessary to clearly describe design, materials, sizes, layouts, standing seam configuration, construction details, provisions for thermal movement, line of panel fixity, fastener sizes and spacings, sealants and erection procedures. Drawings shall reflect the intent of the architectural detailing using the manufacturer's proprietary products and fabricated items as required. The SSSMR system shop drawings shall be provided by the metal roofing manufacturer.

SD-03 Product Data

Design Analysis; G,

Design analysis signed by a Registered Professional Engineer employed by the SSSMR manufacturer. The design analysis shall include a list of the design loads, and complete calculations for the support system (when provided by the Contractor), roofing system and its components; valley designs, gutter/downspout calculations, screw pullout test results, and shall indicate how expected thermal movements are accommodated.

Qualifications; G

Qualifications of the manufacturer and installer.

SD-04 Samples

Accessories; G

One sample of each type of flashing, trim, closure, thermal spacer block, cap and similar items. Size shall be sufficient to show construction and configuration.

Roof Panels; G

One piece of each type to be used, 225 mm long, full width.

Factory Color Finish; G

Three 75 by 125 mm samples of each type and color.

Fasteners; G

Two samples of each type to be used, with statement regarding intended use. If so requested, random samples of bolts, nuts, and washers as delivered to the job site shall be taken in the presence of the Contracting Officer and provided to the Contracting Officer for testing to establish compliance with specified requirements.

Insulation; G.

One piece, 300 by 300 mm, of each type and thickness to be used, with a label indicating the rated permeance (if faced) and R-values. The flame spread, and smoke developed rating shall be shown on the label or provided in a letter of certification.

Gaskets and Insulating Compounds; G

Two samples of each type to be used and descriptive data.

Sealant; G

One sample, approximately 0.5 kg, and descriptive data.

Concealed Anchor Clips; G

Two samples of each type used.

Subpurlins or Anchoring Device; G

One piece, 225 mm long.

EPDM Rubber Boots; G

One piece of each type.

SD-06 Test Reports

Test Report for Uplift Resistance of the SSSMR; G.

The report shall include the following information:

- a. Details of the SSSMR system showing the roof panel cross-section with dimensions and thickness.
- b. Details of the anchor clip, dimensions, and thickness.
- c. Type of fasteners, size, and the number required for each connection.
- d. Purlins/subpurlins size and spacing, or anchoring device used in the test.
- e. Description of the seaming operation including equipment used.
- f. Maximum allowable uplift pressures. These pressures are determined from the ultimate load divided by a factor of safety equal to 1.65.
- g. Any additional information required to identify the SSSMR system tested.
- h. Signature and seal of an independent registered engineer who witnessed the test.

SD-07 Certificates

Structural Standing Seam Metal Roof System; G

- a. Certification that the actual thickness of uncoated sheets used in SSSMRS components including roofing panels, subpurlins, and concealed anchor clips complies with specified requirements.
- b. Certification that materials used in the installation are mill certified.
- c. Previous certification of SSSMR system tested under the Corps of Engineers' Standard Test Method in lieu of ASTM E 1592 testing.
- d. Certification that the sheets to be furnished are produced under a continuing quality control program and that a representative sample consisting of not less than three pieces has been tested and has met the quality standards specified for factory color finish.
- e. Certification of installer. Installer certification

shall be furnished.

f. Warranty certificate. At the completion of the project the Contractor shall furnish signed copies of the 520-year Weathertightness Installation Warranty for Structural Standing Seam Metal Roof (SSSMR) System, a sample copy of which is attached to this section, the 20-year Manufacturer's Material Warranties, and the manufacturer's 20-year system weathertightness warranty.

Insulation; G

Certificate attesting that the polyisocyanurate insulation furnished for the project contains recovered material, and showing an estimated percent of such recovered material.

1.6 DELIVERY AND STORAGE

Materials shall be delivered to the site in a dry and undamaged condition and stored out of contact with the ground. Materials shall be covered with weathertight coverings and kept dry. Storage conditions shall provide good air circulation and protection from surface staining.

1.7 WARRANTIES

The SSSMR system shall be warranted as outlined below. Any emergency temporary repairs conducted by the owner shall not negate the warranties.

1.7.1 Contractor's Weathertightness Warranty

The SSSMR system shall be warranted by the Contractor on a no penal sum basis for a period of twenty years against material and workmanship deficiencies; system deterioration caused by exposure to the elements and/or inadequate resistance to specified service design loads, water leaks, and wind uplift damage. The SSSMR system covered under this warranty shall include the entire roofing system including, but not limited to, the standing seam metal roof panels, fasteners, connectors, roof securement components, and assemblies tested and approved in accordance with ASTM E 1592. In addition, the system shall consist of panel finishes, slip sheet, insulation, vapor retarder, all accessories, components, and trim and all connections with roof panels. This includes roof penetration items such as vents, curbs, and skylights; interior or exterior gutters and downspouts; eaves, ridge, hip, valley, rake, gable, wall, or other roof system flashings installed and any other components specified within this contract to provide a weathertight roof system; and items specified in other sections of these specifications that are part of the SSSMR system. All material and workmanship deficiencies, system deterioration caused by exposure to the elements and/or inadequate resistance to specified design loads, water leaks and wind uplift damage shall be repaired as approved by the Contracting Officer. See the attached Contractor's required warranty for issue resolution of warrantable defects. This warranty shall warrant and cover the entire cost of repair or replacement, including all material, labor, and related markups. The Contractor shall supplement this warranty with written warranties from the installer and system manufacturer, which shall be submitted along with Contractor's warranty; however, the Contractor shall be ultimately responsible for this warranty. The Contractor's written warranty shall be as outlined in attached WARRANTY FOR STRUCTURAL STANDING SEAM METAL ROOF (SSSMR) SYSTEM, and shall start upon final acceptance of the facility. It is required that the Contractor provide a separate bond in an amount equal to the installed total roofing

system cost in favor of the owner (Government) covering the Contractor's warranty responsibilities effective throughout the ~~five~~twenty year Contractor's weathertightness warranty period for the entire SSSMR system as outlined above.

1.7.2 Manufacturer's Material Warranties.

The Contractor shall furnish, in writing, the following manufacturer's material warranties which cover all SSSMR system components such as roof panels, anchor clips and fasteners, flashing, accessories, and trim, fabricated from coil material:

a. A manufacturer's 20 year material warranty warranting that the aluminum, zinc-coated steel, aluminum-zinc alloy coated steel or aluminum-coated steel as specified herein will not rupture, structurally fail, fracture, deteriorate, or become perforated under normal design atmospheric conditions and service design loads. Liability under this warranty shall be limited exclusively to the cost of either repairing or replacing nonconforming, ruptured, perforated, or structurally failed coil material.

b. A manufacturer's 20 year exterior material finish warranty on the factory colored finish warranting that the finish, under normal atmospheric conditions at the site, will not crack, peel, or delaminate; chalk in excess of a numerical rating of eight, as determined by ASTM D 4214 test procedures; or change color in excess of five CIE or Hunter Lab color difference (delta E) units in accordance with ASTM D 2244. Liability under this warranty is exclusively limited to refinishing with an air-drying version of the specified finish or replacing the defective coated material.

c. A roofing system manufacturer's 20 year, non-prorated, system weathertightness warranty.

1.8 COORDINATION MEETING

A coordination meeting shall be held 30 days prior to the first submittal, for mutual understanding of the Structural Standing Seam Metal Roof (SSSMR) System contract requirements. This meeting shall take place at the building site and shall include representatives from the Contractor, the roof system manufacturer, the roofing supplier, the erector, the SSSMR design engineer of record, and the Contracting Officer. All items required by paragraph SUBMITTALS shall be discussed, including applicable standard manufacturer shop drawings, and the approval process. The Contractor shall coordinate time and arrangements for the meeting.

PART 2 PRODUCTS

2.1 ROOF PANELS

Panels shall be steel and shall have a factory color finish. Length of sheets shall be sufficient to cover the entire length of any unbroken roof slope for slope lengths that do not exceed 9 m. When length of run exceeds 9 m and panel laps are provided, each sheet in the run shall extend over three or more supports. Sheets longer than 30 m may be furnished if approved by the Contracting Officer. Width of sheets shall provide not more than 600 mm of coverage in place. SSSMR system with roofing panels greater than 300 mm in width shall have standing seams rolled during installation by an electrically driven seaming machine. Height of standing seams shall be not less than 43 mm for rolled seam and 43 mm for seams

that are not rolled.

2.1.1 Steel Panels

Steel panels shall be zinc-coated steel conforming to ASTM A 653/A 653M; aluminum-zinc alloy coated steel conforming to ASTM A 792/A 792M, AZ 55 coating; or aluminum-coated steel conforming to ASTM A 463/A 463M, Type 2, coating designation T2 65. Zinc, zinc-aluminum alloy or aluminum coated panels shall be 0.584 mm thick minimum. Panels shall be within 95 percent of reported tested thickness as noted in wind uplift resistance testing required in paragraph PERFORMANCE REQUIREMENTS.

2.2 CONCEALED ANCHOR CLIPS

Concealed anchor clips shall be the same as the tested roofing system. Clip bases shall have factory punched or drilled holes for attachment. Clips shall be made from multiple pieces with the allowance for the total thermal movement required to take place within the clip. Single piece clips may be acceptable when the manufacturer can substantiate that the system can accommodate the thermal cyclic movement under sustained live or snow loads.

2.3 ACCESSORIES

Flashing, trim, metal closure strips, caps and similar metal accessories shall be the manufacturer's standard products. Exposed metal accessories shall be finished to match the panels furnished. Die cast metal closures shall be installed with double bead tape sealant and fasteners that stitch the panel to a 2 mm preformed backer plate to ensure a positive compression of the tape sealant. The use of a continuous angle butted to the panel ends to form a closure will not be allowed.

2.4 FASTENERS

Fasteners for steel roof panels shall be zinc-coated steel, aluminum, corrosion resisting steel, or nylon capped steel, type and size specified below or as otherwise approved for the applicable requirements. Fasteners for aluminum roof panels shall be aluminum or corrosion resisting steel. Fasteners for structural connections shall provide both tensile and shear ultimate strengths of not less than 3340 N per fastener. Fasteners for accessories shall be the manufacturer's standard. Exposed roof fasteners shall be sealed or have sealed washers on the exterior side of the roof to waterproof the fastener penetration. Washer material shall be compatible with the roofing; have a minimum diameter of 10 mm for structural connections; and gasketed portion of fasteners or washers shall be neoprene or other equally durable elastomeric material approximately 3 mm thick. Exposed fasteners for factory color finished panels shall be factory finished to match the color of the panels.

2.4.1 Screws

Screws for attaching anchor devices shall be as recommended by the manufacturer.

2.4.2 Bolts

Bolts shall be not less than 6 mm diameter, shouldered or plain shank as required, with locking washers and nuts.

2.4.3 Structural Blind Fasteners

Blind screw-type expandable fasteners shall be not less than 6 mm diameter. Blind (pop) rivets shall be not less than 7 mm minimum diameter.

2.5 SUBPURLINS

Cold formed supporting structural members/subpurlins, where used, shall have a minimum thickness of 1.5 mm and a minimum tensile yield strength of 345 MPa. Hot rolled structural members shall have a minimum thickness of 6 mm and a minimum tensile yield strength of 248 MPa. Subpurlins shall be galvanized.

2.6 FACTORY COLOR FINISH

Panels shall have a factory applied polyvinylidene fluoride finish on the exposed side. The exterior finish shall consist of a baked-on topcoat with an appropriate prime coat. Color shall match the color indicated on the drawings. The exterior coating shall be a nominal 0.025 mm thickness consisting of a topcoat of not less than 0.018 mm dry film thickness and the paint manufacturer's recommended primer of not less than 0.005 mm thickness. The interior color finish shall consist of a backer coat with a dry film thickness of 0.013 mm. The exterior color finish shall meet the test requirements specified below.

2.6.1 Salt Spray Test

A sample of the sheets shall withstand a cyclic corrosion test for a minimum of 2016 hours in accordance with ASTM D 5894, including the scribe requirement in the test. Immediately upon removal of the panel from the test, the coating shall receive a rating of not less than 10, no blistering, as determined by ASTM D 714; 10, no rusting, as determined by ASTM D 610; and a rating of 6, over 2.0 to 3.0 mm failure at scribe, as determined by ASTM D 1654.

2.6.2 Formability Test

When subjected to testing in accordance with ASTM D 522 Method B, 3 mm diameter mandrel, the coating film shall show no evidence of cracking to the naked eye.

2.6.3 Accelerated Weathering, Chalking Resistance and Color Change

A sample of the sheets shall be tested in accordance with ASTM G 154, test condition UVA-340 lamp, 4h UV at 60 degrees C followed by 4h CON at 50 degrees C for 24 total hours. The coating shall withstand the weathering test without cracking, peeling, blistering, loss of adhesion of the protective coating, or corrosion of the base metal. Protective coating with an adhesion rating less than 4B when tested in accordance with ASTM D 3359, Test Method B, shall be considered as an area indicating loss of adhesion. Following the accelerated weathering test, the coating shall have a chalk rating not less than No. 8 in accordance with ASTM D 4214 test procedures, and the color change shall not exceed 5 CIE or Hunter Lab color difference (delta E) units in accordance with ASTM D 2244. For sheets required to have a low gloss finish, the chalk rating shall be not less than No. 6 and the color difference shall be not greater than 7 units.

2.6.4 Humidity Test

When subjected to a humidity cabinet test in accordance with ASTM D 2247 for 1000 hours, a scored panel shall show no signs of blistering, cracking, creepage or corrosion.

2.6.5 Impact Resistance

Factory-painted sheet shall withstand direct and reverse impact in accordance with ASTM D 2794 13 mm diameter hemispherical head indenter, equal to 6.7 times the metal thickness in mm, expressed in Newton-meters, with no cracking.

2.6.6 Abrasion Resistance Test

When subjected to the falling sand test in accordance with ASTM D 968, Method A, the coating system shall withstand a minimum of 50 liters of sand before the appearance of the base metal. The term "appearance of base metal" refers to the metallic coating on steel or the aluminum base metal.

2.6.7 Specular Gloss

Finished roof surfaces shall have a specular gloss value of 10 or less at an angle of 85 degrees when measured in accordance with ASTM D 523.

2.6.8 Pollution Resistance

Coating shall show no visual effects when covered spot tested in a 10 percent hydrochloric acid solution for 24 hours in accordance with ASTM D 1308.

2.7 INSULATION

Thermal resistance of insulation shall be not less than the R-values shown on the contract drawings. R-values shall be determined at a mean temperature of 24 degrees C in accordance with ASTM C 518. Insulation shall be a standard product with the insulation manufacturer, factory marked or identified with insulation manufacturer's name or trademark and R-value. Identification shall be on individual pieces or individual packages. Insulation, including facings, shall have a flame spread not in excess of 75 and a smoke developed rating not in excess of 450 when tested in accordance with ASTM E 84. The stated R-value of the insulation shall be certified by an independent Registered Professional Engineer if tests are conducted in the insulation manufacturer's laboratory. Contractor shall comply with EPA requirements in accordance with Section 01670 RECYCLED / RECOVERED MATERIALS.

2.8 INSULATION RETAINERS

Insulation retainers shall be type, size, and design necessary to adequately hold the insulation and to provide a neat appearance. Metallic retaining members shall be nonferrous or have a nonferrous coating. Nonmetallic retaining members, including adhesives used in conjunction with mechanical retainers or at insulation seams, shall have a fire resistance classification not less than that permitted for the insulation.

2.9 SEALANT

Sealants shall be elastomeric type containing no oil or asphalt. Exposed sealant shall be colored to match the applicable building color and shall cure to a rubberlike consistency. Sealant placed in the roof panel

standing seam ribs shall be provided in accordance with the manufacturer's recommendations.

2.10 GASKETS AND INSULATING COMPOUNDS

Gaskets and insulating compounds shall be nonabsorptive and suitable for insulating contact points of incompatible materials. Insulating compounds shall be nonrunning after drying.

2.11 VAPOR RETARDER

2.11.1 Vapor Retarders Separate from Insulation

Vapor retarder material shall be polyethylene sheeting conforming to ASTM D 4397. A single ply of 0.25 mm polyethylene sheet; or, at the Contractor's option, a double ply of 0.15 mm polyethylene sheet shall be used. A fully compatible polyethylene tape which has equal or better water vapor control characteristics than the vapor retarder material shall be provided. A cloth industrial duct tape in a utility grade shall also be provided to use as needed to protect the vapor retarder from puncturing.

2.11.2 Slip Sheet for Use With Vapor Retarder

Slip sheet for use with vapor retarder shall be a 0.24 kg per square meter rosin-sized, unsaturated building paper.

2.12 EPDM RUBBER BOOTS

Flashing devices around pipe penetrations shall be flexible, one-piece devices molded from weather-resistant EPDM rubber. Rubber boot material shall be as recommended by the manufacturer. The boots shall have base rings made of aluminum or corrosion resisting steel that conform to the contours of the roof panel to form a weather-tight seal.

2.13 PREFABRICATED CURBS AND EQUIPMENT SUPPORTS

Prefabricated curbs and equipment supports shall be of structural quality, hot-dipped galvanized or galvanized sheet steel, factory primed and prepared for painting with mitered and welded joints. Integral base plates and water diverter crickets shall be provided. Minimum height of curb shall be 200 mm above finish roof. Curbs shall be constructed to match roof slope and to provide a level top surface for mounting of equipment. Curb flange shall be constructed to match configuration of roof panels. Curb size shall be coordinated, prior to curb fabrication, with the mechanical equipment to be supported. Strength requirements for equipment supports shall be coordinated to include all anticipated loads. Flashings shall not be rigidly attached to underline structure.

PART 3 EXECUTION

3.1 INSTALLATION

Installation shall be in accordance with the manufacturer's erection instructions and drawings. Dissimilar materials which are not compatible when contacting each other shall be insulated by means of gaskets or insulating compounds. Molded closure strips shall be installed wherever roofing sheets terminate in open-end configurations, exclusive of flashings. The closure strip installation shall be weather-tight and sealed. Screws shall be installed with a clutching screw gun, to assure

screws are not stripped. Field test shall be conducted on each gun prior to starting installation and periodically thereafter to assure it is adjusted properly to install particular type and size of screw as recommended by manufacturer's literature. Improper or mislocated drill holes shall be plugged with an oversize screw fastener and gasketed washer; however, sheets with an excess of such holes or with such holes in critical locations shall not be used. Exposed surfaces and edges shall be kept clean and free from sealant, metal cuttings, hazardous burrs, and other foreign material. Stained, discolored, or damaged sheets shall be removed from the site.

3.1.1 Field Forming of Panels for Unique Area

When roofing panels are formed from factory-color-finished steel coils at the project site, the same care and quality control measures that are taken in shop forming of roofing panels shall be observed. Rollformer shall be operated by the metal roofing manufacturer's representative. In cold weather conditions, preheating of the steel coils to be field formed shall be performed as necessary just prior to the rolling operations.

3.1.2 Subpurlins

Unless otherwise shown, subpurlins, where used, shall be anchored to the purlins or other structural framing members with bolts or screws. Attachment to the substrate (when provided) or to the panels is not permitted. The subpurlin spacing shall not exceed 750 mm on centers at the corner, edge and ridge zones, and 1500 mm maximum on centers for the remainder of the roof. Corner, edge, and ridge zones are as defined in ASCE 7.

3.1.3 Roof Panel Installation

Roof panels shall be installed with the standing seams in the direction of the roof slope. The side seam connections for installed panels shall be completed at the end of each day's work. Method of applying joint sealant shall conform to the manufacturer's recommendation to achieve a complete weather-tight installation. End laps of panels shall be provided in accordance with the manufacturer's instructions. Closures, flashings, EPDM rubber boots, roof curbs, and related accessories shall be installed according to the manufacturer's drawings. Fasteners shall not puncture roofing sheets except as provided for in the manufacturer's instructions for erection and installation. Expansion joints for the standing seam roof system shall be installed at locations indicated on the contract drawings and other locations indicated on the manufacturer's drawings.

3.1.4 Concealed Anchor Clips

Concealed anchor clips shall be fastened directly to the structural framing members. Attachment to the substrate (when provided) or to the metal deck is not permitted. The maximum distance, parallel to the seams, between clips shall be 750 mm on center at the corner, edge, and ridge zones, and 1500 mm maximum on centers for the remainder of the roof.

3.2 PROTECTION OF VAPOR RETARDER FROM ROOF DECK

A cloth industrial duct tape shall be applied over the seams of metal roof decks, at penetration edges, and at surface areas exhibiting sharp burrs or similar protrusions. For other types of roof decks, cloth industrial duct tape shall be applied over irregularities which could potentially puncture

polyethylene membrane.

3.3 VAPOR RETARDER INSTALLATION

3.3.1 Polyethylene Vapor Retarder

The polyethylene vapor retarder membrane shall be installed over the entire surface. A fully compatible polyethylene tape shall be used to seal the edges of the sheets to provide a vapor tight membrane. Sheet edges shall be lapped not less than 150 mm. Sufficient material shall be provided to avoid inducing stresses in the sheets due to stretching or binding. All tears or punctures that are visible in the finished surface at any time during the construction process shall be sealed with polyethylene tape.

3.4 CLEANING AND TOUCH-UP

Exposed SSSMR systems shall be cleaned at completion of installation. Debris that could cause discoloration and harm to the panels, flashings, closures and other accessories shall be removed. Grease and oil films, excess sealants, and handling marks shall be removed and the work shall be scrubbed clean. Exposed metal surfaces shall be free of dents, creases, waves, scratch marks, and solder or weld marks. Immediately upon detection, abraded or corroded spots on shop-painted surfaces shall be wire brushed and touched up with the same material used for the shop coat. Factory color finished surfaces shall be touched up with the manufacturer's recommended touch up paint.

CONTRACTOR'S TWENTY (20) YEAR NO PENAL SUM WARRANTY
FOR
STRUCTURAL STANDING SEAM METAL ROOF (SSSMR) SYSTEM

FACILITY DESCRIPTION _____

BUILDING NUMBER: _____

CORPS OF ENGINEERS CONTRACT NUMBER: _____

CONTRACTOR

CONTRACTOR: _____

ADDRESS: _____

POINT OF CONTACT: _____

TELEPHONE NUMBER: _____

OWNER

OWNER: _____

ADDRESS: _____

POINT OF CONTACT: _____

TELEPHONE NUMBER: _____

CONSTRUCTION AGENT

CONSTRUCTION AGENT: _____

ADDRESS: _____

POINT OF CONTACT: _____

TELEPHONE NUMBER: _____

CONTRACTOR'S TWENTY (20) YEAR NO PENAL SUM WARRANTY
FOR
STRUCTURAL STANDING SEAM METAL ROOF (SSSMR) SYSTEM
(continued)

THE SSSMR SYSTEM INSTALLED ON THE ABOVE NAMED BUILDING IS WARRANTED BY _____ FOR A PERIOD OF TWENTY (20) YEARS AGAINST WORKMANSHIP AND MATERIAL DEFICIENCIES, WIND DAMAGE, STRUCTURAL FAILURE, AND LEAKAGE. THE SSSMR SYSTEM COVERED UNDER THIS WARRANTY SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO, THE FOLLOWING: THE ENTIRE ROOFING SYSTEM, MANUFACTURER SUPPLIED FRAMING AND STRUCTURAL MEMBERS, METAL ROOF PANELS, FASTENERS, CONNECTORS, ROOF SECUREMENT COMPONENTS, AND ASSEMBLIES TESTED AND APPROVED IN ACCORDANCE WITH ASTM E 1592. IN ADDITION, THE SYSTEM PANEL FINISHES, SLIP SHEET, INSULATION, VAPOR RETARDER, ALL ACCESSORIES, COMPONENTS, AND TRIM AND ALL CONNECTIONS ARE INCLUDED. THIS INCLUDES ROOF PENETRATION ITEMS SUCH AS VENTS, CURBS, SKYLIGHTS; INTERIOR OR EXTERIOR GUTTERS AND DOWNSPOUTS; EAVES, RIDGE, HIP, VALLEY, RAKE, GABLE, WALL, OR OTHER ROOF SYSTEM FLASHINGS INSTALLED AND ANY OTHER COMPONENTS SPECIFIED WITHIN THIS CONTRACT TO PROVIDE A WEATHERTIGHT ROOF SYSTEM; AND ITEMS SPECIFIED IN OTHER SECTIONS OF THE SPECIFICATIONS THAT ARE PART OF THE SSSMR SYSTEM.

ALL MATERIAL DEFICIENCIES, WIND DAMAGE, STRUCTURAL FAILURE, AND LEAKAGE ASSOCIATED WITH THE SSSMR SYSTEM COVERED UNDER THIS WARRANTY SHALL BE REPAIRED AS APPROVED BY THE CONTRACTING OFFICER. THIS WARRANTY SHALL COVER THE ENTIRE COST OF REPAIR OR REPLACEMENT, INCLUDING ALL MATERIAL, LABOR, AND RELATED MARKUPS. THE ABOVE REFERENCED WARRANTY COMMENCED ON THE DATE OF FINAL ACCEPTANCE ON _____ AND WILL REMAIN IN EFFECT FOR STATED DURATION FROM THIS DATE.

SIGNED, DATED, AND NOTARIZED (BY COMPANY PRESIDENT)

(Company President)

(Date)

CONTRACTOR'S TWENTY (20) YEAR NO PENAL SUM WARRANTY
FOR
STRUCTURAL STANDING SEAM METAL ROOF (SSSMR) SYSTEM
(continued)

THE CONTRACTOR SHALL SUPPLEMENT THIS WARRANTY WITH WRITTEN WARRANTIES FROM THE MANUFACTURER AND/OR INSTALLER OF THE SSSMR SYSTEM, WHICH SHALL BE SUBMITTED ALONG WITH THE CONTRACTOR'S WARRANTY. HOWEVER, THE CONTRACTOR WILL BE ULTIMATELY RESPONSIBLE FOR THIS WARRANTY AS OUTLINED IN THE SPECIFICATIONS AND AS INDICATED IN THIS WARRANTY EXAMPLE.

EXCLUSIONS FROM COVERAGE

1. NATURAL DISASTERS, ACTS OF GOD (LIGHTNING, FIRE, EXPLOSIONS, SUSTAINED WIND FORCES IN EXCESS OF THE DESIGN CRITERIA, EARTHQUAKES, AND HAIL).
2. ACTS OF NEGLIGENCE OR ABUSE OR MISUSE BY GOVERNMENT OR OTHER PERSONNEL, INCLUDING ACCIDENTS, VANDALISM, CIVIL DISOBEDIENCE, WAR, OR DAMAGE CAUSED BY FALLING OBJECTS.
3. DAMAGE BY STRUCTURAL FAILURE, SETTLEMENT, MOVEMENT, DISTORTION, WARPAGE, OR DISPLACEMENT OF THE BUILDING STRUCTURE OR ALTERATIONS MADE TO THE BUILDING.
4. CORROSION CAUSED BY EXPOSURE TO CORROSIVE CHEMICALS, ASH OR FUMES GENERATED OR RELEASED INSIDE OR OUTSIDE THE BUILDING FROM CHEMICAL PLANTS, FOUNDRIES, PLATING WORKS, KILNS, FERTILIZER FACTORIES, PAPER PLANTS, AND THE LIKE.
5. FAILURE OF ANY PART OF THE SSSMR SYSTEM DUE TO ACTIONS BY THE OWNER TO INHIBIT FREE DRAINAGE OF WATER FROM THE ROOF AND GUTTERS AND DOWNSPOUTS OR ALLOW PONDING WATER TO COLLECT ON THE ROOF SURFACE. CONTRACTOR'S DESIGN SHALL INSURE FREE DRAINAGE FROM THE ROOF AND NOT ALLOW PONDING WATER.
6. THIS WARRANTY APPLIES TO THE SSSMR SYSTEM. IT DOES NOT INCLUDE ANY CONSEQUENTIAL DAMAGE TO THE BUILDING INTERIOR OR CONTENTS WHICH IS COVERED BY THE WARRANTY OF CONSTRUCTION CLAUSE INCLUDED IN THIS CONTRACT.
7. THIS WARRANTY CANNOT BE TRANSFERRED TO ANOTHER OWNER WITHOUT WRITTEN CONSENT OF THE CONTRACTOR; AND THIS WARRANTY AND THE CONTRACT PROVISIONS WILL TAKE PRECEDENCE OVER ANY CONFLICTS WITH STATE STATUTES.

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CONTRACTOR'S TWENTY (20) YEAR NO PENAL SUM WARRANTY
FOR
STRUCTURAL STANDING SEAM METAL ROOF (SSSMR) SYSTEM
(continued)

**REPORTS OF LEAKS AND SSSMR SYSTEM DEFICIENCIES SHALL BE RESPONDED TO WITHIN 48 HOURS OF RECEIPT OF NOTICE, BY TELEPHONE OR IN WRITING, FROM EITHER THE OWNER OR CONTRACTING OFFICER. EMERGENCY REPAIRS TO PREVENT FURTHER ROOF LEAKS SHALL BE INITIATED IMMEDIATELY; A WRITTEN PLAN SHALL BE SUBMITTED FOR APPROVAL TO REPAIR OR REPLACE THIS SSSMR SYSTEM WITHIN SEVEN (7) CALENDAR DAYS. ACTUAL WORK FOR PERMANENT REPAIRS OR REPLACEMENT SHALL BE STARTED WITHIN 30 DAYS AFTER RECEIPT OF NOTICE, AND COMPLETED WITHIN A REASONABLE TIME FRAME. IF THE CONTRACTOR FAILS TO ADEQUATELY RESPOND TO THE WARRANTY PROVISIONS, AS STATED IN THE CONTRACT AND AS CONTAINED HEREIN, THE CONTRACTING OFFICER MAY HAVE THE SSSMR SYSTEM REPAIRED OR REPLACED BY OTHERS AND CHARGE THE COST TO THE CONTRACTOR.

IN THE EVENT THE CONTRACTOR DISPUTES THE EXISTENCE OF A WARRANTABLE DEFECT, THE CONTRACTOR MAY CHALLENGE THE OWNER'S DEMAND FOR REPAIRS AND/OR REPLACEMENT DIRECTED BY THE OWNER OR CONTRACTING OFFICER EITHER BY REQUESTING A CONTRACTING OFFICER'S DECISION UNDER THE CONTRACT DISPUTES ACT, OR BY REQUESTING THAT AN ARBITRATOR RESOLVE THE ISSUE. THE REQUEST FOR AN ARBITRATOR MUST BE MADE WITHIN 48 HOURS OF BEING NOTIFIED OF THE DISPUTED DEFECTS. UPON BEING INVOKED, THE PARTIES SHALL, WITHIN TEN (10) DAYS, JOINTLY REQUEST A LIST OF FIVE (5) ARBITRATORS FROM THE FEDERAL MEDIATION AND CONCILIATION SERVICE. THE PARTIES SHALL CONFER WITHIN TEN (10) DAYS AFTER RECEIPT OF THE LIST TO SEEK AGREEMENT ON AN ARBITRATOR. IF THE PARTIES CANNOT AGREE ON AN ARBITRATOR, THE CONTRACTING OFFICER AND THE PRESIDENT OF THE CONTRACTOR'S COMPANY WILL STRIKE ONE (1) NAME FROM THE LIST ALTERNATIVELY UNTIL ONE (1) NAME REMAINS. THE REMAINING PERSON SHALL BE THE DULY SELECTED ARBITRATOR. THE COSTS OF THE ARBITRATION, INCLUDING THE ARBITRATOR'S FEE AND EXPENSES, COURT REPORTER, COURTROOM OR SITE SELECTED, ETC., SHALL BE BORNE EQUALLY BETWEEN THE PARTIES. EITHER PARTY DESIRING A COPY OF THE TRANSCRIPT SHALL PAY FOR THE TRANSCRIPT. A HEARING WILL BE HELD AS SOON AS THE PARTIES CAN MUTUALLY AGREE. A WRITTEN ARBITRATOR'S DECISION WILL BE REQUESTED NOT LATER THAN 30 DAYS FOLLOWING THE HEARING. THE DECISION OF THE ARBITRATOR WILL NOT BE BINDING; HOWEVER, IT WILL BE ADMISSIBLE IN ANY SUBSEQUENT APPEAL UNDER THE CONTRACT DISPUTES ACT.

A FRAMED COPY OF THIS WARRANTY SHALL BE POSTED IN THE MECHANICAL ROOM OR OTHER APPROVED LOCATION DURING THE ENTIRE WARRANTY PERIOD.

-- End of Section --